Gleanings in Bee Culture

Established 1873

CONTENTS

December, 1939

Honey Markets	728-729
Why Honey Prices are at Their Present Level —Harold J. Clay	733-736
Holiday Treats—Mrs. Benj. Nielsen	737-739
Food and Development of the Worker and the Queen Honeybee—Mykola H. Haydak	740-742
Wintering Bees in Idaho—Frank Beach, Jr.	743-745
Passing of John H. Lovell	745
More New Uses for Dark Honey —Mildred Ross, B.Sc.Edu.	746-747
Compact Honey Cabinet—Benj. Nielsen	748
Every-day Gifts of Honey—C. M. Littlejohn	749
Wintering Bees in New England—R. E. Newell	749-750
Do You? I Don't—C. H. Pease	751-752
Australian Beekeeping—P. Stephens	752-753
Can a Bee Bend Over Backwards? —Clarence W. Carroll	753
Second Glances—C. M. Isaacson	753-754
Spinster Jane Says—	755
Just News	756
Editorials	757-759
From North, East, West and South	760-766
Heads of Grain from Different Fields	767
Vicksburg Meeting—M. J. Deyell	768-769
Asked and Answered	770
American Honey Institute News Notes	771

Subscription Rates—United States and Canada, one year, $1.00; two years for $1.50; three years for $2.00. Single copy, 10 cents. Other countries, 25c per year additional for postage. Discontinuance—Subscription stopped on expiration. No subscriber will be run into debt by us for this journal. Change of address—Give your old address as well as the new and write the name to which the journal has heretofore been addressed. Remittance should be sent by postoffice money order, bank draft, express money order or check. Contribution to Gleanings columns solicited; stamps should be enclosed to insure return to author of manuscript if not printed. Advertising Rates—Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. Advertisers' Reliability—While the publishers do not guarantee advertisements in this journal, they use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

Entered as second class mail matter at the Postoffice at Medina, Ohio. Published monthly.

The A. I. Root Company, Publishers, Medina, Ohio

E. R. Root and M. J. Deyell, Editors; M. W. Hobart, Assistant Editor; H. H. Root, Associate Editor; D. C. Babcock, Circulation Manager.

B & Z LIBRARY

XUM

ROOT SERVICE From CHICAGO

5-Pound Glass Honey Pails

• • •

DELUXE HONEY SERVERS

Ideal for roadside honey sales,—
Fill with honey for trade
Standard Tin Containers
Glass jars,—all sizes
Shipping Cases
Honey Labels

• • •

• • •

Prompt Shipments
Write for prices

• • •

A. I. Root Co. of Chicago
224 West Huron Street
Chicago, Illinois

To New York State Beekeepers:

A Word to the Wise

All indications point to higher prices. Now is the time to get your beekeeping equipment for next season.

Send us a list of your requirements for SPECIAL QUOTATIONS on ROOT QUALITY hives, frames, sections, AIR-CO FOUNDATION both Single-Ply and THREE-PLY during the winter months.

If you have BEESWAX and need foundation, let us know how much wax you have and what foundation you will need. We have a SPECIAL PLAN that will SAVE YOU MONEY.

Don't Delay—Write Today

A. I. Root Co. of Syracuse
Midland Ave. and Tallman St.
SYRACUSE, N. Y.

Serves You Best

We Will Buy Your White and Amber Extracted Honey

Send us a sample and tell us how much you have and how it's packed. Name your best delivered price and if we can make a deal, your check will be mailed to you the same day the honey is received. We can furnish empty containers. . . . . .

THE FRED. W. MUTH CO.
229 Walnut St. CINCINNATI, OHIO

Ship your old comb and cappngs to us for rendering into beeswax.

We will buy your beeswax for cash or trade for supplies.

If you have Fancy or No. 1 white comb honey, we could use a few hundred cases early in the season. Write us.

Indianapolis --- 24-hr. Service

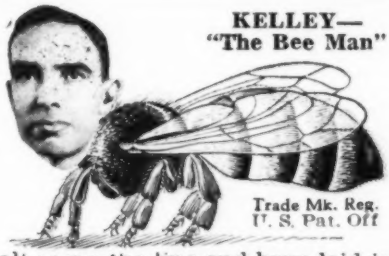
on your order for Bee Supplies

HEADQUARTERS FOR

3-Ply Foundation, Triple-Locked-Corner Frames, Quality Hives, Sections, Veils, Smokers, etc.

See our 1939 catalog for name of nearest dealer.

A. I. Root Co. of Indianapolis, 121 N. Alabama St.
Indianapolis, Ind.



WAR?

What effect will the war have on prices? We look for price advances all along the line and have laid in a good stock of material at pre-war prices. Our advice is to **buy now** the things you know you will need next year.

We are now allowing **EARLY ORDER DISCOUNTS.** Send us your list for special quotations. Our prices will be higher later on.

The Walter T. Kelley Co., Paducah, Kentucky

FACTORY TO YOU
WRITE for FREE CATALOG

NEW SUPER-QUALITY KITSELMAN FENCE

Heavier, amazingly improved galvanizing. Tougher, longer-lasting Copper-Bearing Steel. **Low Factory Prices. WE PAY FREIGHT.** 160 styles and heights Farm, Poultry and Lawn Fence; Steel Posts, Gates, Barb Wire, Paints, Roofing. Write today.

KITSELMAN BROTHERS
Dept. 21 **Muncie, Indiana**

EDWARDS METAL ROOFS

Look better, last longer, cost less. Protection from fire, lightning, wind and weather. Send roof measurements today for money-saving price, freight paid. **Ask for Catalog 89-G.**

THE EDWARDS MANUFACTURING CO.
1233-1283 **BUTLER ST.** **CINCINNATI, OHIO**

We Thank You

For your patronage during the past year, and wish all of our Beekeeping friends and customers a very—

Merry Christmas and a Happy and Prosperous New Year

August Lotz Company

Manufacturers of those famous Lotz Sections.

Boyd, Wisconsin.

Notice of REMOVAL

A. I. Root Quality Bee Supplies

formerly located on

COMMERCE ST.

Now 516 Main St

Larger improved quarters with plenty of free parking space on Plume Street. Complete stocks of Bee Supplies, Honey, Pure Wax Candles, Toys, Etc. See our Main Street Window Display.

H. J. Cary, manager.
20 YEARS IN NORFOLK
Phone 21750.

The Monthly Honey Market

U. S. GOVERNMENT REPORT

Information from Producing Areas (last half of October).

California Points: Southern California—The weather in Southern California during the latter half of October continued in a rather unsettled condition with temperatures varying from normal to considerably above normal. Light rains fell during the period in southern areas.

If this section gets more rain during the fall, vegetation should be in good condition for next season. Mustard in orchard districts is yielding pollen and other late honey plants such as goldenrod and broomweed are still furnishing some food. Manzanita is in bloom. The bees are mostly reported in good condition where they have had care. They are brooding exceptionally early, some hives have three broods, which may mean a heavy consumption of stores later on. Some colonies have been moved to other fall producing districts, and some have been moved so that they can be cared for more conveniently.

Honey was in lighter demand during this period, offerings were generally about moderate with a weaker market tendency. Slight price declines were noticeable on most grades and types of honey. Sales by beekeepers in ton lots or more at Southern California delivery points: Per case of 120 lbs.—Sage and Buckwheat, Light Amber to Extra Light Amber $6.00-6.15; Amber $5.75-5.85; Mixed Flowers, Light Amber $5.25; sales in a small way, 60's Sage Water White 10c per lb., Extra Light Amber 7½c per lb.

Imperial Valley—Colonies have an abundance of honey and pollen for wintering. The number of bees is about normal for the time of the year. Brood rearing is greatly decreased. There is very little if any secretion of nectar at this time. Sales by beekeepers, ton lots or more, Light Amber to Extra Light Amber Alfalfa $5.60-5.75 and Amber Alfalfa $5.00 per case of 120 lbs. delivered Los Angeles, other sales Light Amber to Extra Light Amber Alfalfa $5.40-5.50; few low as $5.25 per case f.ob. Imperial Valley points. A carlot sale of Light Amber Alfalfa is reported at $5.50 per case of 120 lbs. f.o.b. Imperial Valley. Some producers are holding for $6.00 per case.

Central California—Temperatures were generally above normal over most of this area during the last half of October. Rain is badly needed in certain localities. The water supply in some reservoirs is said to be very low. Vegetation started after local showers but north winds dried everything badly again. Bees are finding few nectar producing plants. Manzanita looks favorable for heavy blooms, sage and buckwheat are in poor condition. Most bees are reported to be in good shape but some colonies will go into winter light in clusters and light in honey. The pollen supply is said to be unusually good in some localities.

The honey market was rather quiet with little buying on the part of dealers. Producers generally were reported to be holding firmly with relatively few attempting to sell at this time. Sales by beekeepers in ton lots or more are reported at 3½c per lb. net, cans returned at Central California delivery points—Alfalfa-Cotton, Light Amber 4¼-4½c; Mixed Wild Flower, Light Amber 4-4¼c; Amber 3½-3¾c per lb. Several lots of Light Amber to White Cotton-Alfalfa-Spikeweed were sold at $5.25 per case of 120 lbs. at the yards; Light Amber Buckwheat $6.40 per case, White Orange at $6.80 per case; Light Amber to Extra Light Amber Alfalfa $5.00 per case. Sales delivered Los Angeles: San Joaquin Valley, Light Amber to Extra Light Amber Alfalfa $5.25-5.35, some low as $5.00 per case of 120 lbs.

Northern California—Warm weather with clear bright days prevailed in some sections, but rain in upper end of Sacramento Valley was sufficient to start vegetation, lower part is very dry. Good rains are reported in the Sierra-Nevada Mountains. Because of dry summer thistle and many other plants yielded less than normal amount of honey. Colonies which normally produced 25-35 lbs. of thistle each, yielded only about 10 lbs. this season. Strong colonies will have sufficient stores but many weaker ones will require feeding.

The light crop of Orange and Sage honey is resulting in an increased demand for thistle honey with little demand for the darker grade of honey. Market is slightly stronger with producers generally holding for higher prices. Sales reported at Northern California delivery points during early part of this period, in ton lots or more, per lb.: Star Thistle, Extra Light Amber to White 5-5½c, Light Amber to Extra Light Amber 4½-4¾c; Mixed Wild Flowers, Light Amber 4-4¼c. Some small lots are being held for higher prices. Offers of 22c per lb, for beeswax were reported but no sales at that price listed.

Pacific Northwest: West of Cascades—Temperatures for the most part have been above average although a sudden drop about the middle of the period brought cold rains with snow in the higher altitudes. As the period closed temperatures have again moved above normal, with sunshine over most of the area. When weather permits bees are gathering pollen from western dandelion but they are consuming some stores. Condition of bees is generally up to normal for this time of the year. There is a rather light crop of Fireweed honey and it is generally of poor color. Honey is moving as well or better than a year ago. Price tendency is slightly upward. Large lots of Alfalfa Light Amber sold at 5¼c per lb. delivered. Amber 5c per lb. and a small lot of Light Amber to White brought 5½c per lb. delivered.

East of Cascades—Warm weather is reported for the past two weeks. Honey flow held out rather late this season and bees are still active during the middle of the day, but have only asters, rabbit brush and dropped fruit to work on. Colonies are in good condition. The quality of honey from eastern Washington is said to be below last year. Reports now show that production varies from 60 to 120 pounds per colony. There is a light supply of last year's honey still on hand. Sales reported: Extracted White Clover-Alfalfa in ton lots at 5¾c per lb., Extra Light Amber to White 4c per lb., Dark Amber 3c per lb., White to Wa-

THOUSANDS OF QUEENS ARE LOST while being introduced. This loss would be greatly reduced if they were introduced by the Chantry method. Pritchard's Chantry device is quickly attached to the regular mailing cage and makes a complete Chantry cage. For 10 cents I will send one Chantry device and our leaflet. This describes, in detail, our method of introducing, and the cages we use. The leaflet sent only on receipt of a self addressed, stamped envelope.

Mell Pritchard, Medina, Ohio, Rt. 6

ter White 5-5½c delivered, but most is being held for 5¾-6c per lb. small pails White 7½c per lb. The demand for comb honey has been fairly good although light supplies of last year's crop remain, Fancy $2.75, Choice $2.35 per case of 24-sections f.o.b. loading stations.

SUMMARY—With a few exceptions more moisture is needed in all sections to insure normal vegetation during the next honey season. Some rains are reported during the period where badly needed, but clover and other seedings should have more moisture in most sections. The honey flow from fall flowers was not generally as large as expected, and brood rearing in some cases was curtailed by this short flow. In many localities bees will have to be packed for winter with a shortage of young bees and stores. Supplies of pollen are plentiful.

Honey is moving better in most sections than expected in spite of the unusually warm weather which normally retards honey sales. Producers are hoping for better prices and in some cases are reluctant to sell. Comb honey is in light supply. Very little 1938 honey remains to be moved.

The summary statement for the last half of September stated that "Losses of bees from grasshopper poison bait have been heavy in Utah and other States". The implication of poison bait in these losses based on reports received from our cooperators, has not been confirmed. An attempt is being made by the Department and State agencies to definitely determine the cause of these losses but evidence now available to the Department indicates that grasshopper bait is not attractive to bees and its distribution does not result in colony losses.

Monthly Report of Honey Producers

Early in November we sent the following questions to honey producers: 1. What per cent of the honey produced in your locality has already left the hands of the producers? Give answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) comb honey, Fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb pails? (b) Comb honey, fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. What is the condition of colonies for winter in your locality compared with normal, considering the number and age of bees and the supply of stores? Give answer in per cent. 7. How does the number of colonies to be wintered in your locality compare with that of last year? Give answer in per cent. 8. What is the present condition of honey plants in your locality as compared with the average? Give answer in per cent. The answers received are tabulated as follows:

State	Name	Pct. sold.	Large lots. Ex.	Comb.	To grocers. Ex.	Comb.	To consumers. Ex.	Comb.	Movement.	Cond. of col.	No. to be win.	Cond. honey plants.
S-Cal.	(L. L. Andrews)	99	.05¼				.62	.20	Fair	70	90	80
S-Cal.	(Geo. Larinan)	80					.50		Fair	100		
SE-Colo.	(Otis E. Adcock)	10	.05			3.75	.50	.20	Slow	100	90	100
E-Conn.	(Allen Latham)	40			.75	5.00	1.00	.28	Fair	150	90	100
S-Fla.	(C. C. Cook)		.04		.35		.50		Slow	100	125	50
C-Fla.	(Harry Hewitt)	30			.33		.49		Slow	100	100	100
SE-Ga.	(J. J. Wilder)	50	.05½		.50		.65		Slow	100	115	100
S-Ills.	(Carl E. Killion)	75	.06¾	2.95	.45	3.50	.59	.19	Fair	60	100	75
NC-Ind.	(T. C. Johnson)	25			.50	3.00	.60	.15	Fair	75	100	75
NW-Ind.	(E. S. Miller)	40			.50	3.00	.65	.15	Fair	100	95	90
S-La.	(E. C. Davis)	75	.05		.35		.50		Fair	100	100	100
N-Me.	(G. B. Griffin)	60				4.80		.30	Fair	100	100	100
N-Mich.	(Ira D. Bartlett)	66							Fair	100	100	100
E-Mich.	(L. S. Griggs)	25	.05½		.38		.50		Fair	100	120	100
S-Mich.	(Floyd Markham)	25	.06		.50	3.00	.75	.20	Fair		100	50
C-Mich.	(E. D. Townsend)	80	.06						Slow	100	110	90
E-Minn.	(Francis Jager)	100	.07¼		.34		.47		Fair	90	90	110
S-Minn.	(J. F. Garner)	50	.05	2.75	.45	3.60	.55	.20	Fair	100	125	100
W-Minn.	(B. L. Morehouse)	25			.42		.55		Fair	90	105	95
W-Nev.	(Geo. G. Schweis)		.05	3.25		3.25	.55	.20	Fair	100	100	100
W-N. M.	(C. A. Baltzley)	35	.06¾	3.00	.60	3.75	.63	.23	Fair	100	100	80
NW-N. Y.	(Geo. B. Howe)	40	.06	3.60	.45	4.00	.60	.20	Fair	95	100	50
C-Nebr.	(J. H. Wagner)	25	.06	2.40	.38	3.00	.43	.15	Slow	100	90	60
C-N. Y.	(F. W. Lesser)	60	.06½	3.50	.48	4.20			Rapid	90	100	75
C-N. Y.	(N. L. Stevens)	40	.06		.45		.60	.15	Fair	100	100	75
NW-N. C.	(C. S. Baumgarner)	100			.70		.85	.25	Slow	100	100	90
SE-N. C.	(W. J. Martin)	75	.06½		.60		.80	.20	Fair	90	100	100
E-N.D.	(M. W. Cousineau)		.05¼		.40	3.25	.49	.20	Fair			
C-Ohio	(R. D. Hiatt)	20			.47	3.60	.60	.19	Fair	75	115	60
NC-Okla.	(C. F. Stiles)	50			.45		.65	.18	Fair	80	90	80
W-Ore.	(H. A. Scullen)	30			.40		.48	.17	Slow	100	100	100
C-Pa.	(Harry Beaver)				.50		.65		Rapid	90	100	
SE-Pa.	(D. C. Gilham)	10	.06½		.70	4.25	1.00	.25	Fair	90	95	100
W-S. C.	(E. S. Prevost)				.68		75		Fair	80	85	100
SE-S. D.	(J. F. Norgren)	35	.05		.42	2.80	.54	.15	Fair	90	110	95
C-Tenn.	(J. M. Buchanan)	90					.75	.20	Fair	90	100	90
E-Tenn.	(W. L. Walling)	75			.75		1.00		Fair	90	90	50
C-Texas	(T. A. Bowden)	50			.45		.55		Fair	90	100	90
S-Texas	(J. N. Mayes)	5	.05		.40				Slow	90	75	90
S-Texas	(H. B. Parks)	90	.05		.48		.60		Fair	80	96	50
N-Utah	(W. H. Hendricks)				.48		.50		Fair	90	50	100
SO-Wash.	(Chas. Higgins)	40	.06			4.80	.48		Rapid	100	100	90
SE-Wash.	(Ryon R. Isbell)				.89	2.90	.45	.15	Slow	80	90	100
SE-Wisc.	(N. B. France)	80	95		.85		45		Fair	100		
W-Wyo.	(Earl C. Reed)	90			45		55		Fair	100	90	75

XUM

For Over 50 Years

Beekeepers in many lands have been pleased with this most important tool in Beekeeping. Your Bingham Smoker is offered for sale by numerous dealers.

INSIST ON THE BEST

Manufacturers of a complete line of Honey Extractors, one for every requirement. Send for printed matter.

A. G. WOODMAN COMPANY
GRAND RAPIDS, MICH.

Honey Wanted

Carloads and less lots. Send sample—write how packed and quantity—and lowest price delivered N. Y. City.

HONEY PACKERS INC.
Packers of Hoffman's Honey.
370 Greenwich St., N. Y. City

HONEY LABELS
The A. I. Root Co., Medina, O.

ARE YOU LOSING BEESWAX?

we render old combs, cappings and slumgum for beekeepers. Our steam wax presses get every available ounce of wax out of this material.

If you are rend ring your own, or having this work done elsewhere, give us a chance to show you what we can do. We specialize on **SLUMGUM** from presses that are not operated under water. We often get from 10 to 40 per cent wax from such material.

Send for our terms. Ship us your **BEESWAX.** Prices are higher.

DADANT & SONS, HAMILTON, ILLINOIS

Shaking Bees Is Hard

on Any Foundation

3-PLY foundation stands this severe strain even during extreme hot weather. Let us quote you on your requirements.

Bee Industries, Ltd., Alhambra, Calif.
1124 Westminster Ave.,

2 Years $1.50

American Bee Journal—monthly: published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey.

SAMPLE COPY FREE.

$1.00 a year, 2 years $1.50 in U. S. A. and Canada Combined with Gleanings in Bee Culture, both magazines, **ONE YEAR, $1.60.** This offer good only in the United States. Address—

American Bee Journal, Hamilton, Ills.

For Christmas Gifts

Give a subscription to a magazine that caters to the interest of the one to whom you give it. Special Gift Cards sent on gift subscriptions, advising the recipient that he or she will get the magazine for one year as a gift from you.

All magazines are monthlies except where otherwise noted.

Introductory Copy		Year's Subscription
15c	Gleanings in Bee Culture	$1.00
10c	Sheep Breeder	1.00
10c	The Sheepman	1.00
25c	Belgian Journal (quarterly)	1.00
10c	American Farm Youth (10 nos.)	.75
15c	American Pigeon Journal	1.00
15c	American Rabbit Journal	1.00
10c	American Turkey Journal	.50
10c	Angora (Goat) Journal	1.00
20c	Goat World	2.00
10c	Milking Shorthorn Journal	.50
10c	Hog Breeder	1.00
10c	Swine World (P.C.'s only)	1.00
15c	Small Stock (rabbits, cavies, etc.)	1.00
15c	American Bee Journal	1.00
10c	Beekeepers' Item	1.00
	Poultry Item	.25
	Leghorn World	.25
	Plymouth Rock Monthly	.25
	Rhode Island Red Journal	.25

Act Quickly. Rush your order today.

Send coin, bill, money order, check or stamps.

MAGAZINE MART

Dept. GB, La Grange, Illinois

PATENTS & TRADEMARKS

Williamson & Walton

Munsey Building

Washington, D. C.

DEALERS ATTENTION

We have a special proposition of interest to all dealers or to all beekeepers who wish to become dealers of Beekeepers' Supplies. Write for information. All goods are GUARANTEED SATISFACTORY.

Falcon Quality Products

W. T. Falconer Mfg. Company

Falconer, New York

Honey Containers

—FRICTION TOP PAILS
2½-lb., 5-lb. and 10-lb. pails.

—FIVE-GALLON CANS
In bulk, or packed in wood cases.

—GLASSWARE
8 sizes, white caps.

—PAPER SHIPPING CASES
Holding 24 sections of comb honey. Packed 10 to bundle.

—WINDOW CARTONS
Best quality—any quantity.

—CELLOPHANE
Plain sheets, or decorated sheets.

—LABELS
Stock labels for small orders. Special with your name and address—250 and up.

—TIN PASTE
A Grade, "it Sticks".

—DeLUXE HONEY SERVERS
Fill with honey for your store trade. The housewife likes them.

—And finally send for price list covering all these items.

ROOT QUALITY GOODS
in Michigan

M. H. Hunt & Son

Lansing Michigan

Years of Experience

are required for successful comb foundation manufacture

Dadant's Foundation is the result of more than **sixty years** of careful study and experiment. Four generations of the Dadant family have made the manufacture of comb foundation their SPECIALTY.

Dadant's Foundation

1. Costs less to assemble
2. Sets up rapidly when most needed
3. Hauls distances without damage
4. Produces few drones
5. Permits free and easy comb handling
6. Makes full brood combs
7. Provides for safe moving of colonies
8. Enables drawn combs to be speedily extracted
9. Gives combs with extra long life

Therefore, when you buy your foundation, consider what these features will mean to you

Dadant & Sons, Manufacturers
Hamilton, Illinois

We buy BEESWAX both for cash and trade. Write for prices.

Vol. 67
No. 12

Gleanings in Bee Culture

December
1939

Why Honey Prices are at Their Present Level

Harold J. Clay

Marketing Specialist, U. S. Department of Agriculture, Washington, D. C.

(Talk given at Annual Meeting of American Honey Producers' League, Sacramento, California, November 8, 1939.)

I expect that the first reaction of most folks to the title "Why Honey Prices are at Their Present Level", is that the phrase is incomplete, and that it should have been "Why Honey Prices are at Their Present **Low** Level". Many feel that the bottom of the market has only recently been reached.

It just goes to show how short some of our memories are. Certainly, honey price ranges have been low during recent months. But they have not made new recent records for lowness.

The price of white orange honey to the beekeeper, for example, has ranged during the present season from 4½c to 6c per pound. But many would like to forget that back in July, 1932, California beekeepers sold white orange at 3½c per pound.

Similarly, intermountain white sweet clover-alfalfa, now bringing beekeepers 4½-5c per pound, often sold appreciably under 4c per pound back in 1932 and 1933. And most commercial beekeepers in the Mountain States lived through the experience and survived financially.

Now, having disposed of the idea that recent honey prices have been at bedrock levels and also having agreed that they really **are** low, nevertheless, let's get promptly to the meat of the reasons for current prices.

Honey Prices Follow Price Trend of Other Foods

Basically, honey prices are low because other food products are low. Tabulations of the prices of farm commodities show that in spite of sharp variations from the main curve for certain products, practically all tend to rise or fall as a unit from season to season, though not in the same degree. And the variations from the normal price trend are due in the main to fluctuations in the good old standbys of supply and demand. Ability to buy is another leading factor in causing the general level of food prices to rise or fall. If the price of one farm product gets too far out of line with others, growers tend to shift to the crop that is high and produce enough more of it to bring its prices down to a figure in line with that of other farm commodities.

It is interesting to note that the years in which honey prices were the lowest, 1932 and 1933, were also the years in which the price of farm products as a whole were the lowest since long before the World War. Further, this past summer, when the honey market was so weak was also the time when farm prices generally reached their lowest level since 1933 or 1934.

Perhaps this is as good a time as any to say that the supply of honey has less bearing upon the price than is the case with most other farm products. Stocks of honey were a little larger last year than the demand, and adversely affected the price somewhat, but in most other recent years of low prices the production of honey was not heavy and was at times even below normal.

But why have farm products generally, and honey especially, been at such low levels recently? The answer cannot be given in one sentence, nor

XUM

in one short talk. I shall list only a few of the most obvious reasons.

Diminishing Foreign Markets Affect Domestic Price Trend

First, within the memory of most of us, the United States has changed from a debtor to a creditor nation. In other words, the products we have brought in from other nations in recent years have been less in value than those we shipped to them. This has not been altogether a matter of the quantity of the products shipped abroad now and previously. The change in the value of all foreign currency in its relation to the dollar is one of the other factors, but only one of many. Yet Americans have hesitated to accept imports of industrial goods with which foreigners could in effect pay for the agricultural commodities which they imported. The age-old principle of barter between nations,—even if a three or four way series of trades were necessary,—was rather lost sight of by Americans; and as foreign gold piled up here the opportunity of shipping our goods abroad lessened.

Our exports of honey were never heavy, in proportion to our total production, but whereas in the fiscal year 1929 we exported nearly 12 million pounds of honey, mostly to Germany and Great Britain, last year our exports were under 4 million pounds. Even these exports had an effect upon the domestic market and upon the price situation out of all proportion to their volume. And export prospects for next year, with our previous leading markets either at war or situated near other countries which are engaged in hostilities, and declaring honey either a contraband or a luxury requiring a special import license, do not appear bright.

Again, increases in the production abroad of many commodities which America formerly shipped to other countries, or the substitution for them of other articles perhaps less desirable but still usable, have contributed to the decrease in the demand for our products in foreign lands. This applies to agricultural as well as to industrial products. Exports of butter, cheese, eggs, pork, and pork products including lard, beef, and beef products, for example, are sharply less than exports of these products even before the World War.

Increasing Distribution Costs Affect Price to Beekeepers

It is not so many years ago that extracted honey was principally sold in pint and quart Mason jars or the buyer came to the beekeeper's home with his own container which was filled from a barrel or a 60-lb. can. Today the consumer demands a fancy glass container or a lacquered tin pail, in either case decorated with a finely lithographed label,—entirely legitimate demands and in line with modern marketing practice. But the added service has involved not only expensive materials, but the time of many middlemen, which is paid for at wages at least twice what they were before the World War. Further, the consumer is paying less for extracted honey than he did some years ago. The only possible result from a combination of lower consumer prices and higher manufacturing, and other middlemen's costs is lower prices to the producer,—in this case, the beekeeper.

Now, having outlined briefly some of the reasons why honey is lower in price than beekeepers would like to see it, I can't just put down a period and cut this discussion short. I am assuming that you are interested enough to bear with me a little longer while I consider a few ways in which the beekeeper may increase his profits.

But first, let us dispose of the belief of some folks that honey necessarily closely follows the price trend of sugar, jams, and jellies.

Price Relationship Between Honey and Other Products

The lack of direct relationship between honey and sugar was shown graphically in September of this year. Inspired by the war and the frenzied buying of sugar by countless housewives, wholesale sugar prices went up suddenly 30 per cent. At the same time honey prices were hesitating whether or not to advance a small fraction of a cent per pound, and in Chicago were actually weaker than before the war crisis because some folks considered honey a luxury and were passing it up for that reason in favor of what they considered food necessities. I will say more about the luxury angle a little later.

Professor H. F. Wilson of the University of Wisconsin, in a talk before a previous gathering of this body, pointed out that there is a closer relationship between the prices of butter and cheese and honey than between sugar and honey; and this appears to be correct.

Now, how about jams and jellies? Shortly before leaving Washington I

was told by the director of the National Preservers' Association that some 400 million pounds of jams, jellies and fruit butters are produced and sold annually in this country. He said that he had never heard of honey being considered an appreciable competitor of any of those products. And if jams and jellies are not competitors of honey, why should their price trends affect the price trend of honey?

Yet we must agree that honey prices are often affected by the price of corn syrup when honey is sold simply as a sweet. And certainly the sale of new cane syrup in the South, and of new sorghum syrup in the Southern and South-central States, has often proved a real handicap to the sale of honey.

Maple syrup, on the other hand, seems to go serenely on its way, sublimely indifferent to the prices of other syrups, and dwelling in a rarefied price atmosphere of its own. What is the reason for that situation, and is there any way honey can bring itself closer to the prices that consumers have paid, ungrudgingly, for maple syrup?

The answer to the first part of that question is simple. The total production of maple syrup in terms of sugar has ranged during recent years from only 20 to 30 million pounds for the entire country. And for this Madam Consumer pays premium prices for a luxury product.

Shall honey producers agree that it is a luxury and try to capitalize on it from that angle? Well, perhaps beekeepers who sell their own honey direct to the consumers can get higher prices by calling honey a luxury food; but for the industry as a whole wouldn't it be better to endeavor to instill in the minds of housewives that honey is "a luxury food at moderate prices"? The 1939 crop of honey is smaller than last year's, but to sell it readily the appeal of every-day use will be more effective than that of the more occasional use that would result from higher prices.

Cleanliness and Maturity of Honey Aid Consumer Interest

First, put out a uniformly clean product. You and I know that honey containing bees' legs, wax, visible dust and dirt, scum and froth, is not harmed from the standpoint of purity, because doctors tell us that disease organisms cannot live in honey. But the consumer may not know this. And when I go into an extracting plant and see the bees floating on top of a settling tank that is not adequately supplied with straining equipment, I sometimes wonder whether all of them will be strained out. Recent reports in several of the bee journals suggest that many beekeepers need to pay more attention to the cleanliness of their finished product.

Allied to the problem of dirty honey is that of selling honey that is unripe. I am sure that none of you here have been guilty of extracting honey that you knew hadn't been left on the hive long enough to be sufficiently mature, perhaps in order to sell enough honey to take care of some pressing financial obligation. But many of you probably know beekeepers who have done this. And there are few things that will spoil consumer demand as quickly as thin, unripe honey, that may ferment and often does. On the other hand, if his honey is smooth, mellow, well-ripened, and of good flavor the beekeeper has taken a long step toward repeat orders at a fair price.

Price Cutting Tends to Weaken General Price Levels

But maintaining fair prices is difficult if one's competitor is indifferent to them. The genus "price" cutter seems to be as much or more widespread among beekeepers than among most other producers of farm commodities. One reason is that there are so many farmer or non-commercial beekeepers to whom the actual price they receive is not vitally important because their honey is only a sideline, and any money secured for it seems so much added profit. But also there are too many commercial beekeepers who have not counted all their costs and who sell at any price offered, or who find out the price set by a competitor and undercut his figure in order to get the business even if it ruins his own chance of selling later at a profit. Commercial beekeepers should realize that there must be a relationship maintained between cost of production and selling prices if they are to stay in business.

And so often price cutting is needless. That is, buyers would often not decline to pay prices above the level to which the price cutter has forced the market. Is the answer greater cooperation, less individualism among beekeepers? The word cooperation does not necessarily involve beekeep-

XUM

ers getting together formally in an organization though a sufficient number of efficient cooperative might be one means of keeping prices at their proper levels. But as long as the industry contains so many members who insist on extending their rugged individualism to the point of killing a profitable market for their neighbors by forcing down prices, it will be difficult for commercial beekeepers generally to count on the legitimate profits to which their work entitles them.

Perhaps I shouldn't close without saying a word about publicity as a means of developing and maintaining consumer interest and thus aiding to maintain fair market levels. We are told that 150 million dollars a year are spent in advertising food products. It is not the policy of the Department of Agriculture to advocate the advertising of any product, but is seems reasonable that this sum wouldn't have been spent if those selling the products hadn't felt justified in making the expenditure. And I am sure that most of you are enthusiastic about the publicity work of the American Honey Institute, which secures such amazing results at so little expense.

Aiding the Storekeeper Helps the Beekeeper

A year ago I spoke at the New Orleans meeting about the possibility of the industry looking into the advisability of undertaking a producer consumer publicity campaign similar to the campaigns utilized at present for many farm products by organized retailer groups.

In an increasing number of cities wholesale dealers in fruits and vegetables are finding that it pays them to have merchandizing experts visit retail food stores and advise retailers how to present and display their products better.

Beekeepers might profit from their example. Wouldn't a storekeeper not only be more interested in honey but be able to sell more of it if he could talk intelligently about the product and its background? Wouldn't he be more apt to suggest the purchase of honey to his customers if he had been told something about the way in which the bees gather nectar and how it becomes honey, how honey is extracted, the various kinds of honey available on that market, and how honey can be used in the home? All commonplace things to a beekeeper, but perhaps opening up a new field of interest to the storekeeper and to the customer to whom he talks, and perhaps also developing new marketing possibilities and expanding present outlets.

And so, while there are reasons for honey prices being at their present level, there are also reasons for believing that beekeepers should not take the attitude that nothing can be done about them. Whether price levels advance or not depends in a considerable measure upon the individual and collective initiative of members of the industry.

"Honey and Health"

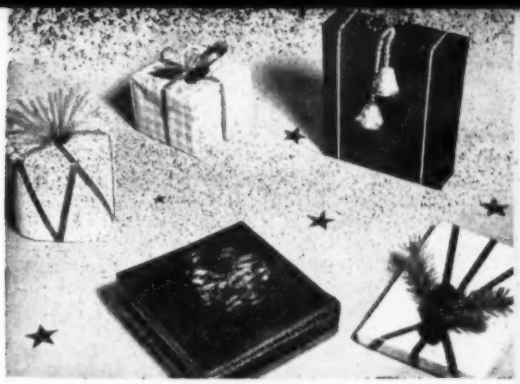
Honey-fed daughter of Mr. and Mrs. John F. Buchman, Tiffin, Ohio. Mr. Buchman is secretary of the Seneca County Beekeepers' Association, a thriving organization. He keeps some bees as a side line from which he derives both pleasure and profit.

XUM

Holiday Treats

Mrs. Benj. Nielsen

Honey Assumes Important Role in Advance Preparation of Food Delicacies



Festive wrappings add even more holiday atmosphere to gifts of choice honey confections.

Once again it is time to make plans for the holiday season and for a goodly supply of the confections which add so much to the gala festivities. Many homemakers have not waited until the holiday season to prepare choice tidbits for gifts. During the canning and preserving season many cooks have utilized those attractive odd jars that accumulate in every household; sealing in these choice honey jellies, jams, or any type delicacies, which have been prepared with the extra care that gives them an outstanding appearance.

One of the best talking points in urging the use of honey in food preparation, is the advantage of being able to prepare these foods so far in advance of actual needs. Honey enhances the natural flavor, develops hidden flavors—in a word, honey preserves and mellows, giving the flavors time to make themselves known. Your own kitchen, with its ever-ready honey jar, is a treasure cove from which you can send the most welcome of family gifts. For the family which seems to have everything, turn to your kitchen for inspiration and gifts that are truly personalized.

There is charm about lovely and attractive Christmas wrappings that makes a package containing the simplest gift an exciting thing. Gone are the days when you could find nothing but the conventional red, white and green, with perhaps a bit of holly wrapping. Shimmering cellophane in an array of colors and designs, pure whites with lovely raised designs in sparkling silver make handsome packages. Endless smart ribbons, cellophane sippers, tiny decorations to be used with a bit of imagination produce lovely and interesting results.

If you desire distinctive packages you may wrap each gift differently, to appeal to the tastes of the recipient, or make similar packages reflecting your own taste and personality. If a number of gifts must be wrapped, one color scheme may be chosen; neither the expense nor time involved need become a strain.

A square box of delicious honey cookies or candies may be wrapped so entrancingly that the lucky recipient can scarcely heed that "not to be opened until December 25th" admonition. Wrap your box in black cellophane, then lay red and silver transparent ribbon flat against the upper and lower edges (see illustration) to form a distinctive border. Top with a generous bow of the same ribbon. Secure all joinings with transparent Scotch tape. By the way, this tape is invaluable in doing up Christmas gifts, a grand aid in achieving that smooth, professional look we so admire.

A mellow, fully ripened honey fruit cake, an inimitably fine flavored honey plum pudding, wrapped in silver paper, laced "drum style" as in the illustration, with scarlet ribbon and finished off with a fat, cellophane sipper pompom will prove to be another welcome gift; either will save dessert preparation on Christmas or may be stored for an emergency dessert later in the year. Wouldn't a small boy be "tickled pink" with a "drum" of wholesome honey cookies? The possibilities are endless and it is so much fun once you begin.

May you find as much joy as the Nielsen's have in preparing and wrapping these delightful honey treats!

Honey Plum Pudding (With Orange Marmalade)

Six eggs, 1 cup honey, 1 cup brown sugar, 1 cup honey orange marmalade, 2 cups honey, cracked or crushed wheat bread crumbs, ¾ cup sour milk, 2 cups chopped beef suet, 4 cups flour, 2 teaspoons cinnamon,

XUM

1 teaspoon nutmeg, 1 teaspoon cloves, 1 teaspoon salt, 2 teaspoons soda, 1 cup chopped cooked prunes, 1 cup chopped figs, 1 cup ground raisins.

Beat eggs until light and lemon colored, add honey, brown sugar and marmalade; mix well. Stir in the bread crumbs and milk. Sift flour once, measure and combine with salt, soda, and spices. Sift into first mixture, add fruits and blend thoroughly. Half fill two medium-sized pudding molds which have been well oiled. Cover tightly and let steam for four hours. Cool. Wrap in waxed paper and store in a cool, dry place. At serving time reheat by steaming for 30 minutes.

Honey Fruit Pudding

Two eggs, 1¼ cups honey, ½ cup buttermilk, 1½ cups flour, 1 cup graham flour, 1 teaspoon soda, 1½ teaspoons baking powder, ¼ teaspoon salt, 1 teaspoon cinnamon, ½ teaspoon nutmeg, ½ teaspoon cloves, ⅓ cup citron slivers, ½ cup chopped raisins, 1 cup ground dates, ½ cup shredded nutmeats, and 5 tablespoons melted butter.

Beat eggs well, add honey and blend. Sift flour once, measure and reserve ½ cup for dredging fruits. Combine remaining flour with salt, soda, baking powder, and spices. Add to first mixture, alternately with the buttermilk. Stir in melted butter and add dredged fruits and nutmeats. Mix thoroughly. Half fill buttered mold. Cover tightly and let steam two hours.

Uncooked Fruit Cake

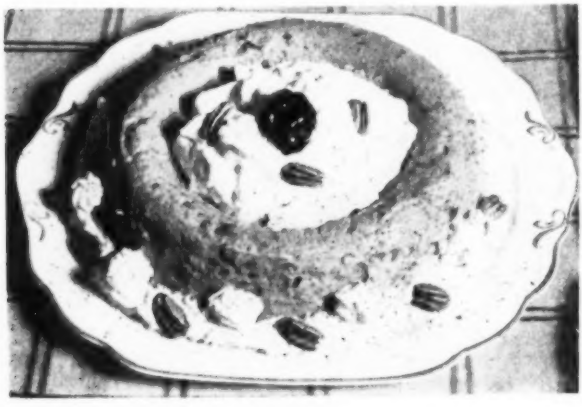
One-half cup butter, ½ cup honey, ½ cup unsweetened pineapple juice, 1 cup dates, cut in small pieces, 1 cup chopped raisins, ½ cup citron slivers, ½ cup candied cherries, ½ cup finely sliced honeyed orange peel, ⅓ cup honeyed lemon peel, finely sliced, 1 teaspoon cinnamon, ½ teaspoon salt, ½ teaspoon allspice, ¼ teaspoon cloves, ½ teaspoon mace, 1 teaspoon vanilla and 3½ cups finely rolled honey graham cracker crumbs.

Cream butter well; add the honey and beat until light and fluffy. Add all of the remaining ingredients except the graham cracker crumbs. Mix well and let stand 2 hours. Then work in the crumbs, blending thoroughly. Pack in buttered loaf pan, which has been lined with waxed paper. Cover with buttered wax paper, and let stand in refrigerator at least 24 hours before serving. This should be aged before serving to produce the fine, distinctive flavor. Keep tightly covered. This cake will keep nicely for 10 days to two weeks in a refrigerator. Serve thin slices as it is very rich.

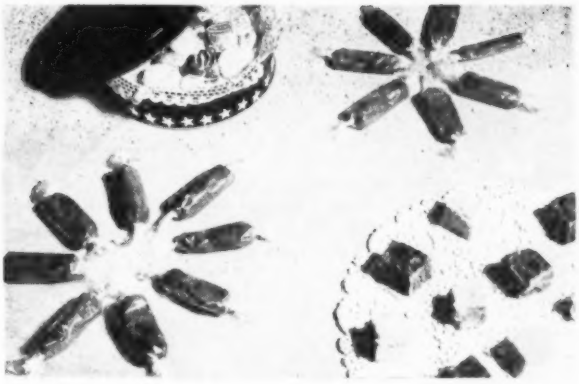
Icebox Fruit Pudding

One tablespoon Knox gelatine, ¼ cup cold water, 1¼ cups prune juice, ½ cup honey, 1 square chocolate, grated, ¼ teaspoon salt, ½ teaspoon cinnamon, 1 cup cream, whipped, ¾ cup chopped cooked prunes, and ½ cup finely cut pecan nutmeats.

Pour cold water in bowl and sprinkle gelatine on top of water. Meanwhile combine prune juice, honey, chocolate, salt and cinnamon; heat. Add softened gelatine and stir until dissolved. Cool, and when mixture begins to thicken, fold in whipped cream, chopped prunes and nuts. Turn into ring mold that has been rinsed in cold water. Chill. When ready to serve, unmold and garnish with stuffed prunes and whole nutmeats. Fill center with honey sweetened whipped cream or serve cream separately, if desired.



Inimitably flavored ice box fruit pudding is a welcome treat to any festivity.



A variety of home-made honey candies is a vital part of every Christmas.

Yuletime Roll

One cup honey, 1 cup sugar, ⅔ cup milk, 2 tablespoons butter, ⅛ teaspoon salt, ¼ cup chopped candied fruits, ½ cup chopped dates, ½ cup chopped nut meats, 1 teaspoon vanilla and ½ pound dipping chocolate.

Boil together, stirring frequently, the honey, sugar, milk and butter. When a soft ball forms when the candy is tested in a little cold water remove from heat and let stand for twenty minutes. Then beat until very thick and creamy. Add salt, dates, candied fruit, vanilla and nutmeats. Shape into a roll two inches thick. Place on heavy waxed paper and coat with the dipping chocolate which has been melted in a double boiler. Do not heat the chocolate too much, as it will become streaked upon cooling if overheated. When the chocolate has "set" cut candy into thin slices. Keep unused portion wrapped in heavy waxed paper.

Chocolate-coated Apples

One cup honey, 1 cup sugar, ½ cup water, ¼ teaspoon salt, 3 tart firm apples and dipping chocolate.

Boil together the honey, sugar, water and salt while washing, paring and cutting the apples into half-moon shaped slices about half an inch thick. Drop pieces into the syrup and cook rapidly until the apples are transparent and practically all of the syrup is absorbed. Lift carefully onto heavy waxed paper to dry. Break up dipping chocolate and place in shallow container over hot water. As soon as the chocolate begins to soften, remove from hot water and stir the chocolate until it is completely melted. Dip pieces of apple into the melted chocolate until well coated, and place on waxed paper to dry. Pack in layers between sheets of waxed paper.

Honey Chocolate Taffy

Three-fourths cup honey, 1 cup sugar, 1½ squares unsweetened chocolate, grated, and ½ cup of very rich milk.

Place ingredients in a heavy iron skillet. Cook slowly to prevent burning, stirring once in a while. When mixture forms a hard ball when tested in cold water, remove from heat and pour onto well buttered platter to cool. When cool enough to handle, pull quickly until light. Stretch out on heavy waxed paper and cut into short lengths with sharp scissors. Wrap at once in heavy waxed paper or cellophane. Do not risk leaving the wrapping until morning for the taffy absorbs moisture rapidly and spreads out. Wrap as soon as cut.

Honey Bars

One cup honey, 1 cup sugar, 3 tablespoons butter, 2 tablespoons vinegar, ½ cup water, ¼ teaspoon soda, 2 cups chopped freshly popped corn, 1 cup Kellogg's Rice Krispies and 1 cup shelled roasted peanuts.

Mix the honey with sugar, butter, vinegar and water. Boil, without stirring, until hard crack stage is reached — when mixture clicks against side of cup when a few drops are tested in cold water. Add soda and mix thoroughly. Add chopped popped corn, rice krispies and peanuts; mix well. Press into a shallow, buttered pan, smoothing with broad side of a knife. When cool cut into bars, one by three inches, using a sharp knife. Wrap in heavy waxed paper.

Aurora, Nebr.

XUM

Food and Development of the Worker and the Queen Honeybee[1]

Mykola H. Haydak
University Farm, St. Paul, Minn.[2]

During their early stages of development all larvae of honeybees receive a special food. As to the origin of this food there has been considerable controversy. Leuckart, whose theory was later elaborated by Schonfeld, considered it to be a product of the stomach, while Fischer believed the sole source of the larval food to be the salivary glands of the head and thorax. Schiementz thought it a product of the pharyngeal glands. Serological work of Langer (1912)[3] proved that the larval food is elaborated in the pharyngeal glands located in the heads of bees. For a review of this question the reader is directed to the articles by Planta (1888), Langer (1929), and Elser (1929).

The larval food is a paste-like milky substance, strongly acid, having a distinct aroma. There are rather few chemical analyses of the larval food. Planta (1888, 1889) investigated chemically food of the queen, worker, and drone. The material for the investigation was supplied by beekeepers. The results of his analyses are shown in Table 1.

Table 1. Chemical composition of larval food (Planta). Percentage in the dry matter of food.

	Queen	Drone			Worker		
	Average	Under 4 days	Over 4 days	Average	Under 4 days	Over 4 days	Average
Protein	45.14	55.91	31.67	43.79	53.38	27.87	40.62
Fat	18.55	11.90	4.74	8.32	8.38	3.69	6.03
Glucose	20.39	9.57	38.49	24.03	18.09	44.93	31.51

The larval food from queen and worker cells showed on microscopical examination only traces of pollen. However, the food of the drone larvae over four days old had a great admixture of pollen grains. Besides that, there was a distinct change in the composition of the food of the worker and drone larvae after they attained the age of four days. Nevertheless, if we take the averages and compare them with the composition of the food of the queen larvae, then the differences are not so striking. Since the examination of larval food from the queen cells was not done according to the age of the queen larvae, one cannot rightly assume that there is not a change in the diet of the queen similar to that of the worker bee.

Planta concluded that the bees prepare larval food according to the purpose which it has to perform. Planta considered that the fact that the composition of the larval food was not constant, supported Schonfeld's theory of its origin. Higher sugar content of the food of larvae over four days old, according to Planta, was due to the addition of honey to the food, which beekeepers considered to occur. He thought that honey was swallowed by bees, and mixed to the larval food in their stomachs, and then fed to larvae. He stated, however, that better nourishment of the queen larvae as compared with that of drone and worker larvae, no doubt, was achieved mainly by the greater quantity of food which the former receive.

Strauss (1911) found a similarity in the percentage composition of larvae and of the larval food, as given by Planta, except that the percentage of fat in over-four-days-old larvae increases. He explained it by a possibility that fat was built in the body of bee larvae, not only from the fats of the food, but also from its other constituents.

Kohler (1922) made chemical analyses of the food of worker and drone larvae under four days of age. In both cases it had the same composition. The differences which she obtained were in the limits of the experimental error. (Table 2).

Table 2. Chemical composition of the food of worker and drone larvae under four days of age (Kohler)

	Worker larvae Per cent	Drone larvae Per cent
Fat	23.30	24.23
Sugar	15.7	14.9

[1]Paper No. 1698 Scientific Journal Series, Minnesota Agricultural Experiment Station.

[2]Grateful acknowledgement is made to Dr. W. A. Riley and Dr. M. C. Tanquary for their interest in the work and helpful suggestions during the preparation of the manuscript.

[3]The years appearing after names of authors refer to the bibliography, which will appear in the January issue, at the end of the article.

According to Kohler, it is only after four days of age that the larvae of drones and workers receive an admixture of pollen and honey. She did not state the source of her information.

Nelson and Sturtevant (1924) observed that the change in the diet of worker larvae takes place as early as during the third day. Undigested pollen grains were regularly found in the food of larvae no more than three days old from the time of hatching from the egg, often in a sufficient amount to color the food slightly.

Elser (1929), using microchemical methods, made a very thorough chemical investigation of the food of queen larvae. The material was supplied by beekeepers, and seven to fifteen milligrams were used for one determination. He investigated the larval food in consecutive days of feeding from the second to the seventh, inclusively. The average results are presented in Table 3. The percentage of the constituents for the fresh matter of food is given. The weights given for queen larvae are so low as to suggest that mistakes in the determination of the age had been made by the beekeepers who supplied them. We have never found the weights of four-day queen larvae less than 123 milligrams.

Both tables show that there was a decrease in the percentage of proteins in the food after the larvae passed their second day of life. This decrease, Planta observed for the workers and drone larvae. There was an increase in the percentage of invert in the diet; this fact was observed by Planta in the case of drones and workers. There was a considerable decrease in the dry matter of the food. Apparently the amount of nutrients in the larval food per volume intake was lower in over-two-days-old larvae than that in the younger larvae. Elser always found pollen grains in the food of queen larvae, partly unbroken, partly broken. Quantitatively, there was always the same amount, regardless of the source. He believed that the pollen was added mechanically.

From the foregoing discussion one has an impression that the question of the difference between the composition of food of queen, worker, and drone larvae is not settled yet. As indicated by Elser, findings of Planta have been quite often misinterpreted. In his preliminary investigation, Langer (1929) obtained different data on the composition of the larval food from those of either Planta or Kohler. He considered that the larval food did not have any fixed composition, but was, in certain limits, variable, and that the growth of the brood was affected by such variation. Elser fully agrees with this statement of Langer. Although he has no doubt that the work of Planta represents a milestone in the investigation of the chemical composition of the larval food, Elser does not consider the data to be strictly correct, due to some objections to the methods employed. Langer (1929) stated that "Data given by Planta do not represent formulas of larval food, but are only to be considered as the results of one investigator." The fact that all the materials were supplied by beekeepers who might have not had the necessary exactness in preparation of the samples which is required for the analyses of such kind, should also be noted.

The writer has on several occasions expressed a belief that there is no particular change in the composition of the diet of a worker larvae as compared with that of a queen. According to Rosch (cited by Rhein), the same nurses feed both queen and worker larvae. If there is a change, it occurs, of course, with some vari-

Table 3. Composition of food of queen larvae (Elser).

Age	2 days	3 days	4 days	5 days	6 days	7 days
Weight of larvae	2.0 mg	4.3 mg	23.1 mg	91.3 mg	148.7 mg	295.5 mg
Weight of food	20.0 mg	142.3 mg	282.2 mg	307.0 mg	298.8 mg	384.2 mg
Water	50.7 %	58.7 %	62.8 %	65.6 %	62.2 %	56.3 %
Dry matter	49.3	41.3	37.2	34.4	37.8	43.7
Fat	8.6	4.9	6.0	4.2	4.3	2.6
Protein	18.9	10.4	10.1	9.4	9.0	10.6
Invert	11.2	8.3	9.5	11.2	10.2	18.8
pH	4.6	4.8	4.7	4.8	4.5	4.1
Pollen	always present					

If we calculate the data on the basis of dry matter, then the table appears as follows:

Table 4. Percentage composition of larval food (Elser) on the basis of dry matter.

Age	2 days	3 days	4 days	5 days	6 days	7 days
Protein	38.2	25.2	27.2	27.3	23.8	24.3
Fat	17.4	11.9	16.1	12.4	11.3	6.0
Invert	22.6	20.1	25.5	33.2	26.9	31.6

XUM

ations, in both cases. This change is partially due to the fact that the older larvae receive more water in their food. It is a known fact that during the brood-rearing season, bees bring large amounts of water into the hive. In time of honey flow, the carrying in of water stops almost completely, nectar probably being used instead. In this case, the sugar content of the larval food would be higher than that produced in time of the lack of honey flow. This fact can explain why Nelson and Sturtevant (1924) found that, "The amount of incoming nectar has an appreciable effect upon the development at least of older larvae. Weights of larvae under three days did not show this variation." Elser found that the moisture content of the food of over-three-days-old larvae was considerably higher than that of larvae two or three days old.

The change in the percentage of the other constituents of the food of older larvae may be explained by the fact that, according to Rosch (1925), younger larvae, under normal conditions, are fed by the 6 to 10-days-old bees which had reached the highest development at that time (Haydak, 1934), while to the older larvae, the food is supplied by 3 to 5 days-old bees whose physiological functions may not have been developed yet to the fullest extent and whose pharyngeal glands possibly do not produce the larval food of the same composition as that secreted by the older bees. It is quite possible that these bees, ingesting large amounts of pollen during that time of their lives, may contaminate the larval food with pollen grains while giving water or nectar to the larvae. The differences in the composition of food as given by Elser, may be still greater, since the food examined in any following day always contained an admixture of that of the previous day or days.

Klein (cited by Becker) considered that the development of the bee larvae into the worker or in the queen is conditioned by the type of feeding which they receive through a relatively long period of time.

The writer is of the opinion that the production of either a worker or a queen is due not to the change of food but to the amount of food consumed by the queen and worker larvae. Up to about the third day of age, all bee larvae are in the period of mass feeding (Lineburg, 1924). After that time the larvae which are in the worker cells are fed progressively, food being given them in the intervals as needed according to the discretion of the nursing bees. The same food as supplied to the larvae in the queen cells is given to the larvae in worker cells, only in a smaller quantity. According to J. I. Hambleton, (personal communication) the progressive type of feeding of worker larvae is a necessity due to the small size of the worker cells.

While the queen larvae continue to be on a mass feeding basis, the worker larvae are undernourished. This is shown in the different growth curves of the worker and queen larvae, the final weight of the former being around 175 milligrams, (Nelson and Sturtevant, 1924), while that of the latter may be over 300 milligrams, (288,300,301 milligrams,—writer's weighings). This is a typical case of partial inanition. Besides that, one has to take into account the fact that the worker larva after sealing has to spend certain amount of materials of its body for the secretion used for production of a cocoon, while queen larvae are sealed with an abundance of food present in the cell, and therefore can restore the materials used in cocoon spinning by ingestion of more food.

The queen larvae actually grow after sealing. The larvae in sealed cells in which cocoons were not yet started, weighed, on an average, 192 milligrams, (8 weighings); those which barely started the spinning of the cocoon weighed 213 milligrams, (25 weighings); and those which had their cocoons made or almost made, on an average, weighed 278 milligrams, (11 weighings). So in the case of queen larvae, there is no underfeeding at any time of the larval life, while in the case of worker larvae, a partial inanition starts after the larva attains the age of about 2½ days. That an addition of pollen is purely accidental and is not necessary for the development of worker larvae, is shown by the fact that Whitcomb and Wilson (1927) and later Haydak (1935) proved that the adult bees can rear brood when fed a sugar solution only.

Rhein (1933) reared honeybee larvae artificially in a constant temperature chamber. He had many setbacks when he tried to rear them from the egg stage, so, in the later experiments, he used two to four

(Continued on page 776)

XUM

Wintering Bees in Idaho

Frank Beach, Jr.

Abundance of Food, Top Entrances, and Windbreaks Help Make Good Wintering Possible

All the essentials of good wintering are incorporated here in this Idaho apiary.

Our decision regarding wintering is the result of years of practical beekeeping in this territory. We have found that for success in wintering we must have (1), a young queen; (2), plenty of stores; (3), ample pollen reserves; (4), a good tight hive; (5), shelter from the winds, or windbreaks; (6), a form of top entrance.

We raise and import young queens so that we are assured of young stock to head our colonies. We winter our colonies in two stories, the top super containing at least seven full frames of sealed honey, together with what honey may be below. This assures the colony against starvation should the dandelion flow be late, or conditions unfavorable for inspection of the colony to learn if enough food is available for brood-rearing. We find that more colonies are lost through starvation during spring brood-rearing than actual winter loss; and this at a time when it may not be possible for the beekeeper with out-apiaries to keep in close touch with his colonies.

Abundance of Pollen Necessary

We consider it necessary to have as many pollen combs as we have combs full of honey. This is essential to spring brood-rearing. Should the colony fail to have either honey or pollen, the colony will experience what we term "spring dwindling" at that time when it is so essential that a colony build up in time for the honey flow, if surplus honey is to be obtained.

We make every effort to keep our hives protected from the weather by a coat of paint, and protected from mice and wind and moisture by being of good tight construction.

We have found that here we do not lose colonies from low temperatures, and therefore we do not pack our colonies. This is an advantage for us. There is no restlessness or drifting of bees as there is when a colony is taken from the pack and placed in position. Our colonies remain permanently located. Being unpacked, we can examine our colonies early to learn if they have sufficient stores of honey, and honey can be slipped into the colony with no disturbance, if honey is needed, simply by taking an empty outside comb and replacing with a full one. We believe that being unpacked the colonies are more responsive and build up more quickly in the spring. Moreover, packing is expensive.

We believe we secure better results by providing protection from the wind. This we do with windbreaks made of willows or sagebrush, both being found in abundance and requiring only labor, plus the small cost of wire for fencing. Thus the expense of windbreaks is reduced to a minimum, and they will last for many, many years. Our posts are railroad ties, placed about ten to twelve feet apart. We use four strands of standard barbed wire, and weave the willows or sagebrush, as the case may be, through the strands of wire. It produces a very effective windbreak. We believe that the wind will carry away heat of the colony as fast as the bees can produce it,—so we prevent this by windbreaks. In a yard free of winds one need never worry about the ability of a colony to maintain heat enough to keep the colony alive.

XUM

Top Entrances Prevent Bees from Smothering

Our top entrance is a ⅜-inch diameter hole bored in the front end of the hive. This has proved satisfactory to us. We do not consider it as defacing the hive in any way. We also employ a lower entrance cleat made from a lath. The entrance hole is 1½ inches long by ⅜ inch. This lath is nailed to the hive with two lath or shingle nails, the opening to the left. The opening is so small that mice cannot enter. Our colonies face in a southeasterly direction; in this manner receiving the benefit of the sun's rays, and at the same time avoiding the draft of the prevailing westerly or southwesterly winds which we have here every spring. The lower entrance being to the left of the colony, or away from the wind, very little air circulates into the bottom of the hive to rob the colony of heat.

Our nights of cold temperature and warm days make lower entrances clog with ice, together with dead bees at times. At times we have had snow melt, while the ground remains frozen, raising the water above the lower entrance of the hives, and resulting in smothering of colonies and drowning of bees. We have eliminated this by employing the so-called top entrance as mentioned above. This top entrance is usually placed on the top or second super, but not necessarily so; so far we have wintered bees equally well, regardless of whether the hole was in the first or second super. This top entrance assures the bees escaping for a flight, even if the lower entrance becomes clogged. Before employing this top entrance, we were often troubled by mold in the combs from moisture, but since using the top entrance this trouble has disappeared. Packed colonies in this locality will usually have moldy combs in the spring.

I would like to mention that we do not employ the usual wooden inner cover. We have substituted instead an inner cover made of filter cloths which we obtain from the local sugar company. These filter cloths are like canvass. The filter cloths cost 10c each, and each filter cloth is ample for four inner covers, making the cost per colony of only 2½ cents. These cloths will last many years. Being of fine woven construction they are not fuzzy like burlap, and the bees will not eat them, and holes will not appear to make them useless. The bees seal them to the hive with propolis making them tight against the weather and wind. When examining the hive the inner cover is peeled back as needed, and there is no jar to disturb the hive as so often happens when the usual wooden inner cover is employed; also, there is no need to remove the entire inner cover, only peeling back what is needed when an examination of the colony is made. This is especially useful in the spring, when it is necessary to conserve colony heat and keep from disturbing the bees. A frame of honey is slipped in, or a frame of pollen, and the colony remains quiet.

You will notice from the photo of our yards that each colony has a rock on the cover. This is used to keep the cover from blowing away. Sometimes we have violent spring winds which, without the rock to keep the cover on, would scatter covers all over our yards. The photos illustrate our windbreaks, top-entrance, outdoor wintering, inner cover, etc.

Metal Tags for Covers

For several years we have used metal hive covers, and occasionally had written on the cover information concerning the hive. Finally we noticed that after several years of exposure to the weather the pencil marks were still bright and clear and easily read.

We approached a tinsmith, who made us metal tags from scraps which would have been useless or waste to him. The cost was small, being one dollar for a thousand metal tags; or ten for a penny. These tags measure two inches in width by three inches in length; and are about the right size for our use. With our system of using abbreviations wherever possible, and using both sides of the tags, we find that each tag will last about three or four years; in some cases even longer. After this time they are discarded.

The stones on the hives keep the covers from blowing away in Idaho's violent wind storms.

This photo illustrates, 1, metal tag; 2, inner cover; 3, top entrance; 4, lower entrance; 5, good painted hive; 6, windbreak in background.

These metal tags have several advantages over anything we have previously tried. The markings remain legible for years, the tags themselves being of metal do not curl or bend, and in a wind do not blow away when the cover is lifted from the hive; also, there is not need to pin them down as we merely place them on the inner cover, then place the cover on the hive; and there they remain until we need to record information concerning the colony. Their cost is so little, and their utility so great that we could scarcely get along without them.

We employ the electric fence to keep cattle away from our colonies in two of our yards. Since using the electric fence we have not been troubled by cattle knocking our covers off, and tipping our colonies over.

Burley, Idaho.

The Passing of John H. Lovell

On August 2nd, John Harvey Lovell of Waldoboro, Maine, internationally known as a botanist, entomologist, all-around scientist, as well as beekeeper, died at the hospital where he had been a patient for three months. (Page 577, September.)

Mr. Lovell was first known to the readers of Gleanings by a series of articles he wrote for its columns some 40 years ago on scientific subjects pertaining to bees and other insects, particularly the structure of flowers and how they were pollinated by insects, with special reference to bees.

Later on he became the botanical editor of the A B C and X Y Z of Bee Culture, a position he held up to the time of his death. In it he also covered several technical descriptions of how bees collect pollen and store it in their pollen baskets. This work still stands unchanged in the 1940 edition.

In 1926, he wrote for us the book, "Honey Plants of North America". The photographs of plants which he took were the finest that had ever been made.

In 1932, he wrote a book on the "Pollination of New England Flowers".

John Harvey Lovell.

Besides all this he wrote voluminously on insects, flowers, and general scientific subjects for newspapers and magazines.

The fact that Mr. Lovell was also a beekeeper made all his scientific work pertaining to bees all the more accurate and valuable.

More New Uses for Dark Honey

Mildred Ross, B. Sc. Edu.

The Use of Dark Honey in Cooking Gives the Food More Tang

Since the publication of my little article entitled "In Defense of Dark Honey" in a past issue of Gleanings, I have had so many calls for dark honey recipes and comments on the work that I have been busy ever since in creating new recipes for its use. As the crop of dark honey is harvested, we have these new ways to employ it. This first recipe for soft cookies is particularly good. If anyone can think of a better name for it, I shall be glad to change it. I have named it "Ginger Tea Cookies" because they are not too sweet to be used for this purpose, and in the winter one bakes more.

Ginger Tea Cookies

Four cups flour (approximately), 1 well beaten egg, ¾ cup sour cream (sour milk or buttermilk can be used), 1 teaspoonful ginger, 1 teaspoonful nutmeg, ⅔ cup shortening, 1 cup dark honey, 1½ teaspoonfuls soda, ½ teaspoonful salt.

METHOD: Melt lard and honey together if cold. In the summer these will blend together without melting. Add beaten egg and then milk. Stir all the ingredients together and combine with the liquids. Chill, if possible, and drop from a tablespoon on a greased baking sheet. If you wish the cookies to be particularly thick do not spread out the dough. This dough when dropped should be almost stiff enough to handle and should hold its shape on the baking sheet. By using a good tablespoonful for each cooky, this recipe will make about two dozen cakes. Bake in a moderate oven—350 degrees F. for 15 minutes.

Honey Fruit Cake

One pound raisins stewed, 1 tablespoonful lard and 1 tablespoonful butter, ¼ teaspoonful salt, 1 cup of nut meats chopped, 3½ cups flour sifted before measuring, 1⅓ cups dark honey, 2 eggs, ¾ cup hot raisin juice, 1 teaspoonful each of cloves, cinnamon and nutmeg, 2 teaspoonfuls soda in the hot juice.

Do not add more flour than the amount stated no matter how thin the batter may appear to you.

METHOD: Melt honey and lard together but do not allow to become hot. Add well beaten eggs, then hot juice containing soda. Mix all other dry ingredients together, including nut meats. Flour raisins and add. This is thin batter but add no more flour. Bake in **very slow oven**—only 250 degrees F. Much longer time is required to bake this cake than ordinary cakes. Test and when the sides draw away from the pan it is ready to be removed. If baked a month before the holidays, it will be much better. A slice served with cider for Hallow'een is something different.

Dark Honey Wafers

(These crisp cookies have a butterscotch flavor)

One cup dark honey, 1½ teaspoonfuls soda, 1 teaspoonful baking powder, ½ teaspoonful cinnamon, ½ cup butter, 1 tablespoonful water, ½ teaspoonful salt. Enough flour to make a stiff dough—about 6 cups will have to be used.

METHOD: Raise the honey and butter to a boil. Dissolve soda in water and add to honey mixture. When cool, add dry ingredients using enough flour to make stiff dough. Roll very thin, cut and bake in strips in moderate oven 325 degrees F. to 350 degrees F. only a short time. Watch after the first 12 minutes to avoid burning. Use with soft cheese or butter spread between them. Allow to stand two days before using.

A friend of mine served this combination of wafers and cheese with a soft drink the other day to a small gathering of women friends in the afternoon and they were all particularly well pleased with this entirely new type of refreshment.

Honey Winter Crinkles

Three-fourths cup shortening, 1 well beaten egg, 2 teaspoonfuls soda, 1 teaspoonful each of cinnamon and ginger, 2½ cups sifted cake flour, 1 cup dark granulated honey, ¼ teaspoonful salt, ½ teaspoonful cloves.

METHOD: Sift together all dry ingredients. Melt the shortening and add it to the honey. Add the egg. Combine all and set in cold place to chill. When thoroughly chilled, shape into small balls, place on buttered sheet and bake 12 to 15 minutes at 350 degrees F. about medium oven.

Christmas Filled Cookies

Two-thirds cup butter, 2 eggs well beaten, 2 teaspoonfuls vanilla, ½ teaspoonful salt, 3 teaspoonfuls baking powder, ⅔ cup dark honey, ¼ cup sweet milk, flour enough to make a soft dough to be rolled out. Start with 3½ cups.

METHOD: Melt honey and butter together or melt butter and stir well into honey not too cold. It is better to have honey warm enough to pour freely when working with it, as it is easier and quicker work. Add beaten egg, vanilla, and milk. Mix flour, salt and baking powder together and combine with liquids. Roll out and cut into thin cookies. Spread filling between two cookies as for a sandwich and bake in oven at 350 degrees F. 12 or 15 minutes. Top may be decorated as desired but a suggestion is to sprinkle with a small amount of colored confetti prepared to lend color to fancy cakes or the honey icing. Many persons like to omit icings and instead cut the center from the cookie placed on top. This open ring has the filling in it as the filling would be spread on the cooky placed underneath. A red cherry can be placed in the center of each ring to lend color. Color is essentially an individual taste and therefore has nothing to add to the food but attractiveness.

Filling for Christmas cookies

One-third cup honey, ½ cup each of raisins, figs and nut meats, 1 tablespoonful lemon juice or very tart orange juice, 1 tablespoonful flour, ⅓ cup water.

METHOD: Mix fruits and nuts together and blend with fruit juice. Add honey. Make a paste with the flour and water. Stir all ingredients well together and cook over very slow fire to avoid burning or sticking. When thick and flour is cooked, remove and cool before using as cooky filler. This filler many be used with any other plain type of cooky dough.

Date Drop Cookies

Three-fourths cup butter (or half lard and half butter), ⅔ cup dark honey, 2 eggs, 1 cup chopped dates, 1 teaspoonful vanilla, 1 teaspoonful soda, 2½ cups flour measured after it has been sifted, 1 cup chopped walnut meats, 1 teaspoonful baking powder, ⅛ teaspoonful salt.

METHOD: Melt butter and mix well with honey. Add egg and vanilla. Beat well, mix flour, baking powder, soda, salt, dates and nut meats. Mix well and combine with liquid mixture. Drop about a tablespoonful for each cookie on well buttered sheet. Bake about 20 minutes or until a nice brown in oven not over 350 degrees F. Makes between 2 and 3 dozen cookies.

Fig "N" Honey Bread

One tablespoonful butter, 1 egg, 1 cup chopped figs, ⅔ cupful dark honey, 1 teaspoonful soda, 1 cup sour milk, ½ cup nut meats, 1 tablespoonful baking powder (2 teaspoonfuls), 1 teaspoonful salt, 1½ cups white flour, and 1½ cups wholewheat flour —the ground wheat not graham or part wholewheat.

METHOD: Sift white flour, salt, baking powder and soda together; then add wholewheat flour, nuts and figs and mix thoroughly. Warm the honey, add butter, milk and then well beaten egg. Pour liquid mixture slowly into dry mixture. When well mixed, pour into well-greased pan, bake in slow oven until bread shrinks away from sides of pan. Cool before cutting. Ice if desirable. Good with a glass of milk.

Dark Honey Nut Bread

Two-thirds cup dark honey, 2 cups 100% wholewheat flour, ¼ cup cake flour, 1 cupful nutmeats crushed, 1 cup sweet milk, 1 teaspoonful soda, ½ teaspoonful salt, ¼ cup shortening (use fat from ham or bacon but if very salty cut down the amount of salt used in the recipe).

METHOD: Combine liquids. If honey does not combine readily with other liquids, warm slightly—enough to melt it. Add dry mixture to liquid. Beat thoroughly. Bake in greased bread pan in moderate oven, 350 degrees F. for one hour. Cool before removing. Good sandwiches can be made from this with a soft cream cheese filling. Sometime when you are asked to donate something for a supper try this type of sandwich, or, if it is a bake sale for your church, make some different nut bread.

Apricot Honey Loaf

This is an excellent sandwich bread or it is delicious with just good butter. The children like the combination of the apricots and honey. This is unusually good to keep baked for that after-school bite that all children crave, when its just too long to wait until dinner or supper. In fact the nut breads are all enjoyed by the children.

(Continued on page 776)

XUM

Compact Honey Cabinet

Benj. Nielsen

Keeps Stock and Equipment Assembled and Free from Dust

After many years of infringement upon her cupboard rights and table space, the lady of the house has won out, and a cabinet has been created solely for the storing and dispensing of honey. We retail a goodly share of our honey crop right at the house, many of our customers bringing their own containers to be filled. Stocks were kept in cupboards, a dispenser on a table and the scale was supposed to be kept close to the dispenser, but more often than not a hunt was in order and the scale located where some member of the family had used it last. Now the deed is done, everything is so handy I don't see why I didn't wield the hammer and saw sooner. Like most jobs, getting started is the hardest part.

The cabinet in the accompanying pictures is made from 10-inch board and measures 4 feet 4 inches high and 20 inches wide. The doors are of ⅜-inch fir plywood. It was built to fit the only available space in a small kitchen, but may easily be changed, making the cabinet higher or wider to fit varying needs.

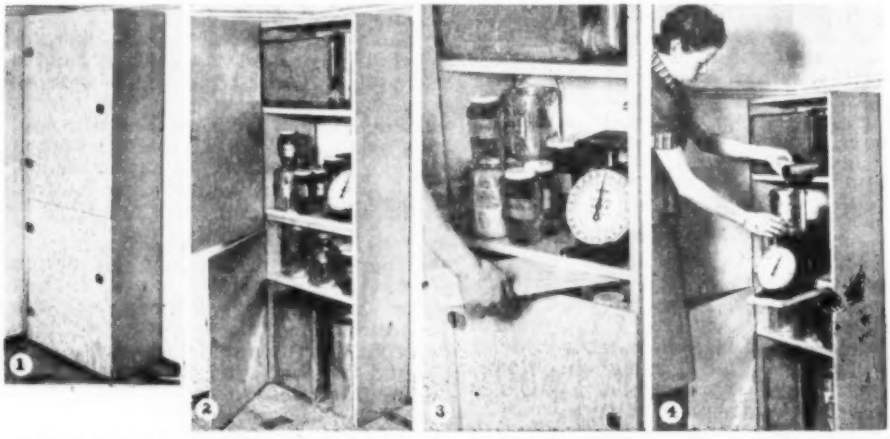
We are still using the same dispensing outfit pictured in Gleanings in 1933. So the top shelf was made wide enough to take a 5-gallon can, placed on its side, filler spout soldered to the cut-out can cap.

The second shelf is quite deep so when the pivoted scale shelf is pulled out there will be ample room for a container to be placed on the scale for filling. The third shelf is made to accommodate gallon pails; beneath is room for a sixty-pound can and more gallons or half-gallon pails.

The scale shelf is fastened on the underside of the second shelf, using a large screw as a pivot. A handhold, cut on the underside of the shelf, facilitates opening.

Since it is not necessary to use the lower portion of the cabinet as frequently as the upper portion, the cabinet was designed with two small doors, rather than the one full length door. Hence the bottom door may remain closed when the pivoted shelf is pulled out for use.

Doors are fitted with chromium hinges and knobs and equipped with small push catches, placed inside to hold the doors closed. For an attractive finish the cabinet may be painted or enameled to match or contrast with the color scheme of the room in which it is placed. Nail holes should be puttied first, one coat of flat paint applied, followed by two coats of good enamel. Light sand papering is advisable between coats. It is tedious work to paint around the hinges and knobs; for best results these should be removed and carefully set back in place when the enamel is dry.



1. Neat, compact cabinet fits into small space. 2. Stock and dispensing equipment is kept handy for use and free from dust. 3. Scale shelf is pivoted by large screw to underside of second shelf. 4. Dispensing nature's finest sweet.

From the Field of Experience

EVERY-DAY GIFTS OF HONEY

C. M. Littlejohn

Christmas or not—in season or out—the honey jar that resembles a gift is the best of all sweets among friends. In fact, every day may be Gift Day when the honey jar has been shaped towards that end, or is highly suggestive of a container worth retaining, when the sweet contents have been consumed.

Folks every day are seeking the most appropriate gift for a relative or friend, for one anniversary or another,—or for the sick or invalid, the shut-in or convalescent, who may find the gift of honey more or less "just what the doctor ordered", when it comes to helping one along the road to recovery.

It has been well said that "a present, to be a present, must **look** like a present",—be pleasurable in other words to the sight and anticipation, bringing immediate joy to the recipient. So carefully-contained honey, particularly the premium products, has great possibilities to "go places", and form the basis of extensive sales by the honey dealer or other outlet for this sweet wherever located.

However, such well-packaged "gifts" must be shown to be sold. They must be located well within sight of passers**buy**,—who will not pass them by.

In this connection, some of the finest gift-jars were those shown in Seattle, Wash., recently, and forming a frontispiece for a prominent window display. These jars bore the likeness of the ancient Acropolis, the Athenian structure of Old Greece,—and they held that celebrated Mt. Hymettus honey, as they held beholders in front of the display.

Resembling somewhat the pottery art of ancient Persia and that later imported into Greece, were the dark brown, earthy vessels, quaint and historic, fashioned after original jars in which Athenians long ago placed their valued Mt. Hymettus honey. They appeared to have been unearthed from excavations with a shovel.

Thus it was shown that considerable display value is inherent in the quaint and bizarre bottle or the ancient honey jar that builds interest for the shop vending honey. Grouped in a mid-window display, they are self-suggestive of sales, appealing to most any passerby in the market for a decorative gift, an attractive present of honey,—for any occasion, anniversary or just for "every-day".

Seattle, Wash.

• • •

WINTERING BEES IN NEW ENGLAND

R. E. Newell

I have been doing considerable experimenting on wintering bees here in New England and have not lost a queenright colony since 1924. There is always a lot of discussion in the bee magazines on the proper methods of wintering bees and I would like to add my own experiences.

I have always packed my bees for winter. I could never sleep nights if I did not have them protected, although some of the smaller beekeepers in this state do not pack. I find packing is profitable if only to save honey. An unpacked colony consumes from 10 to 15 pounds more honey than a properly packed colony, and in addition to the saving on stores the vitality of the bees is almost equal to a package from the South. When the bees come through the winter looking as fresh as when they went into winter, with but few old veterans with the hair and wings all worn off, you can rest assured that they will build up in time to take advantage of the fruit bloom.

I have tried many methods of packing, but the use of packing cases while successful, takes too long to pack and unpack and are not attractive in winter, and a mess to clean up and store away. The tar paper method is undoubtedly the best packing for single wall hives. It is inexpensive, fairly neat in appearance and less packing material is necessary.

The method I use and advocate is a double-wall hive. I have built them with packed bottoms, and with unpacked bottoms, and both appear to be successful providing they set above the ground and are dry. Sides and ends have not less than 1½ inches of packing and on some double-wall hives I have used as much as 4 inches of peat moss, while others have been packed with one or

XUM

more thicknesses of celotex. I now use fine planer shavings mixed with sawdust for all my new hives as it is not expensive, and appears to give as good insulation as any of the other materials. I have some of the Root double-wall Buckeye hives, and as far as I can see they all winter equally well regardless. The Buckeye hive has the added advantage of lightness, and for out-apiaries is an advantage.

With the bottoms above ground and dry and the body of the hive packed permanently, preparations for winter are simple. During late September and early October as brood rearing begins to drop off, I substitute full combs of buckwheat honey and pollen for empty combs from the brood chamber, so that the bottom hive body is at least two-thirds full of honey and in putting in the combs I shove the combs containing the cluster of bees to the cold side of the hive and all the full combs to the east or south sides. This does not split the stores, and there is less danger of starvation due to extremely cold weather when the bees are not able to move about freely.

Very powerful colonies are given a shallow super full of honey in addition to the regular supplies. I make sure, however, that only shallow combs are drawn out worker-cell size from good foundation, so that the early brood will be worker bees and not drones.

The next consideration is top packing. I firmly believe this is the most important point in successful wintering. There is so much moisture given off from a cluster of bees during the winter while consuming honey for heating the hive cluster, that if this moisture is confined to the hive it is almost certain to cause the total loss of the colony or at best cause moldy combs and dysentery. Some beekeepers advocate a top entrance, but I would much rather put a piece of wire screen over the hole in the inner cover. Over this I set a tray of fine sawdust and planer shavings, the burlap bottom of the tray covering the screen over the inner cover. Excess moisture from the cluster passes through the hole of the inner cover and up through the packing in the tray. I have noticed that the packing on top of the tray is very moist where the cover fits tight, and because of this I like to provide an opportunity for this moisture to escape entirely from the hive. If the light covers are preferred for summer, a few thin boards may be placed over the tray, and covered with a piece of roofing paper weighed down with the regular cover and stones, etc. I use from four to six inches of this packing in the trays, and the heat escapes so slowly through packing from the cluster that its loss is not felt. Entrances are reduced according to the size of the colony. Three or four inches by one-half inch for a strong colony to as small as one inch by one-half inch for a five-frame nucleus.

All ready for winter, chaff trays on and entrances reduced to winter proportions.

I am trying out Mr. Latham's side entrance idea this winter with five or ten colonies, but believe I shall reduce the entrance, perhaps not as much as with other colonies. According to Mr. Latham he leaves the full summer entrance which may be satisfactory in southern Connecticut, but not here in this state where we often have it 20 below. I believe with upward ventilation through the packing as in other hives the moisture difficulty could be overcome.

Shelter from winter winds is also very important, and my bees are located on the south side of a hill with sufficient drainage for air and moisture. Some high Japanese barberry bushes and pine prevent a sweep of wind from the sides and back of the hives. With bees properly packed, and full of good stores, one need not worry whether the temperature is 57 degrees F. or 5 below zero. We usually have weather suitable for flight about once a month except during January and February, when it is possible only on occasional years. Last year we had a very cold March, but some years bees obtain pollen after March 15.

Framingham, Mass.

DO YOU? I DON'T

C. H. Pease

The Greatest Good to the Greatest Number

Do you believe that my contributions to Gleanings have any weight with the big carload producers? I don't, because I don't think that big beekeepers, as a rule, take tips from backlotters. However, we little fellows have our problems to wrestle with, and they can be solved as well, in many cases, with a few colonies as with several hundred. My idea is "the greatest good to the greatest number" and surely the backlotters greatly outnumber the big fellows. In our little state of Connecticut there are approximately two thousand beekeepers and only three or four of that number own as many as a hundred colonies—it's the 1996 that are in my class. If some of the old-timers will turn back in their files of Gleanings to June, 1935, and read the first paragraph of E. R. Root's article on page 338, and also what James I. Hambleton of Washington, D. C., said in Gleanings, December, 1935, at the top of the second column on page 742, they may find "food for thought" in what these two authorities say—but I hesitate to quote them here.

Sugar Syrup vs. Fall Honey for Winter Food

Do you depend on fall honey for your bees to winter on? I don't; it is not a safe winter food for this part of the country. As they eat first what they gather last, and if that be fall honey they go through the first part, and perhaps most of the winter, on the poorest honey, and that is a mighty poor substitute for good sugar syrup, which is not only cheaper (here in New England) but, what is more important, is always safe. Fall honey and outside wintering put one beekeeper living within a half mile of me, out of business, after the winter of 1922-'23. He had nineteen colonies in the fall and nineteen dead ones the next spring, and he has not had a bee on his place since. The comparison of fall honey and sugar syrup was well explained by Morley Pettit of Georgetown, Ontario, in the July, 1927, Gleanings, page 434, when he said: "We are now selling our dark fall honey for considerably less than the cost of sugar but the wintering value of sugar is so much greater that it will always be profitable to make up any shortage in weight of the brood chamber in the fall with sugar syrup stores." I can say "Amen" to that statement because I have fed sugar syrup every fall, at an average cost of less than forty-five cents per colony, and have not lost one from wintering in seventeen years.

Do you feel pleased when a good fall flow gives your bees ample stores for winter? I don't, because I don't want that kind of stores. I agree once more with Mr. Pettit, who said in Gleanings, May, 1921, page 268: "We make no provision for the colony to supply itself with winter stores; on the contrary we do all we can to prevent it. We do not want the stuff they get in the fall. . . . Heavy winter losses attributed by the beekeepers themselves to faulty natural stores are often reported a long way south of the Canadian line in the U. S. of America. Do these unfortunate beekeepers learn their lesson? Not that I have noticed." Yes, Mr. Pettit, here's one who learned it seventeen years ago and I have not had a single winter loss since.

But enough on winter stores; here's a different story:

Discouraging Skunks

Do you let skunks make raids on your hives in the fall? I don't. Any polecat that butts into the household affairs of my bees once finds himself out of luck the next time. I would dislike to think I could be outwitted by a skunk. The entrance blocks I made to contract my big open summer entrances when the cool fall weather arrives, do not tuck under the front of the hive body but stand up on the bottom- board, and, if left alone, "stay put" perfectly, but when Mr. Skunk begins scratching at the entrance he pulls the block off, and that misplaced block tells me, the next day, not only what was going on the night before but exactly which hives were visited. As skunks return to the same hives, a steel trap (or better two traps) placed in front of the hive with a light sprinkling of grass to conceal them, will give Mr. Mephitis something besides bees to think about when a trap grabs his leg. He will immediately decide that the bee business is not as attractive as he thought it was and move on as far as the chain or wire will let him go. Then, just before you lay yourself away for the night take your flashlight and shotgun with a load of

XUM

"lead pills" and you may be pretty sure of finding your target waiting for you, as they generally come soon after dark. It's a good idea to fasten the traps with a wire at least six feet long leading away from the hives in order to get the brute far enough away to avoid "spraying" the hives, but if you do a good job with your "blunderbuss" there will be very little scent. Moral: Don't take your dog with you or he may get something that will make you both sorry.

Canaan, Conn.

• • •

AUSTRALIAN BEEKEEPING

P. Stephens

Australia is fast moving in the modernization of apicultural methods. Bees are now being moved hundreds of miles in search of good sites. Soon apiaries of several hundred colonies will be moved to our Northwestern areas onto one of the world's best honeys—yellow box.

Our greatest problem today is the preservation of this and other species of good honey eucalypts. Perhaps American beekeepers do not experience this sort of trouble, at least the journals never mention forestry matters. Most of our inland areas depend on trees for honey production. Vast areas of land are held by a Board which calls itself Pastures' Protection Board, which controls areas in the interests of travelling stock (sheep and cattle). These stock routes range from 5 chain to a mile in width and have many of the more important eucalypts covering them. The Forestry Commission controls green timber but give the P. P. boards permission to ringbark the timber when they apply, but specify that at least 5 spreading trees to the acre be left as well as trees along creeks or gullies. This is where the apiarist's association comes in, as the P. P. boards, who are really the graziers and large landowners, do not keep the conditions so that apiarists and graziers come into conflict.

Our last conflict was launched by the Inverell Apiarists of which I am secretary. We succeeded in getting yellow box *(Eucalyptus Melliodora)* protected on all possible areas. But the local branch of P. P. board issued an order that all apiaries be moved from stock routes. Owing to an act passed many years ago this was within their rights. However, that's a cause we'll have to fight for in the future.

At a recent conference a queen breeders' association was formed and it is hoped that it will have it's desired object for both breeders and customers in Australasia.

Terrible Heat Wave

The past season throughout N. S. W. has not been good for the production of the better grades of honey. Our North Coast areas did fairly well but with the coming of January a terrible heat wave struck us. We had moved about 150 miles north of Inverell and though the thermometer reached 112° and 117° our losses were nil. We consider that those beekeepers who staggered supers to let in air also admitted the heat and whole colonies were melted down.

A big load of bees being moved somewhere in Australia.

P. Stephens of Inverell, Australia.

Apiarists who were far from water also suffered severely as for a few nights the thermometer rose after sundown. It was a most trying experience as many times cars and trucks were stuck on the road with petrol vapor trouble caused through petrol not being able to pump because it had vaporized.

From June to August, our winter months at Inverell, we have had a nice flow of honey and will average about 100 pounds per colony. It is only about once in five years that we are blessed with the flow of white box *(Eucalyptus Albens)*. The temperature is mostly very low during this time and sometimes has an adverse effect on bees in the spring. But with honey of this class at 12 cents per pound, we can afford some loss. After all, we can soon replace them from our breeding yard on the far North Coast.

Inverell, Australia.

• • •

CAN A BEE BEND OVER BACKWARD?

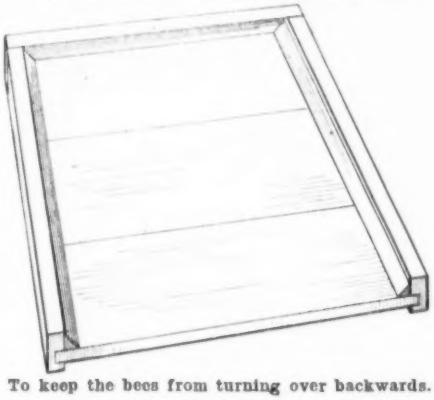
Clarence W. Carroll

Not any more than you can. A bee can double up forwardly, as those who have received a "hypodermic" from one can testify, but to walk along a floor and turn up the wall is difficult.

I placed a hive in my attic last year, and because the bottom-board happened to be a little warped the hive body at the back did not meet it squarely. A slight gap, about ⅛ inch high and 10 inches wide, was left between the body and the top of the rear cleat on the bottom-board. I spent some time looking through this gap at the critters coming into the entrance and going out. Did you ever get a head-on view of a lot of bees at eye level? Well, they resemble miniature mice from that angle.

It was soon apparent that the little workers had a heck of a struggle to start their climb up the sides of the hive. They would try to rear up on their hind legs, and because the side cleats were painted, they would claw vainly for some time before getting a good grip.

I immediately set some triangular corner pieces in another bottom-board, as shown in the sketch, extending the full length of the side cleats and then slipped this under the hive. These cleats made an incline for the bees to run up. You should have seen the difference! They came in and without any hesitation romped up the incline and out of sight behind the outer frames, like a bob-sled taking the turns at the Lake Placid run. I have no doubt that the total time saved would represent considerable honey. Try it, fellows, and see what you think.



To keep the bees from turning over backwards.

Rochester, New York.

• • •

SECOND GLANCES

C. M. Isaacson

Last month I mentioned that our first snow had arrived. Today our second one covers the ground to the depth of an inch or so. They seem to arrive just a little before Gleanings (which always receives a warm reception despite the chilly snow).

Cellar Wintering

That is a very comprehensive article on cellar wintering by Mr. Hofmann (page 669). The four points he enumerates are the essential factors

for success. The underground intake to avoid drafts and temper the air is good. Well wintered bees need surprisingly little air, though; in a colder locality especially, I think smaller ventilation openings than he mentions could be used. That light is the cause of cellar brood rearing is important to note.

Wintering

"The old order changeth." Mr. Root's article is an admirable summary of conditions deemed necessary for successful present day wintering of bees. His mention of the need of moderation in the size of the winter top entrance is well to take heed of —especially in a cold climate. As to the moisture question, might not the ever-widening use of the double brood chamber make for larger fall colonies — which naturally would give off more moisture? This might help to explain the change of opinion as regards the top entrance for a moisture vent; smaller colonies gave off less and so did not need it as badly. Incidentally, I notice in Mr. Hofmann's article (page 720), previously mentioned, that he does not entirely agree with the Editor's note (to Mr. Root's "Wintering") that mid-winter brood rearing is natural and necessary.

The Okefenokee Swamp

Mr. Huey's piece (page 675) brings to mind the several stories based on the Okefenokee Swamp locality appearing in the Saturday Evening Post. It is too bad that there is always a "catch" in these super beekeeping locations, but on the other hand, they would very soon be filled to overflowing if they were flawless.

Comb Honey, Sunshine, Shade and Colors

On page 677, Leslie Burr about expresses the point in the sunshine-shade argument. The arguments show that each have some merit, of course, but in the main, a good colony is a good one—sun or shade—or vice versa.

Fruit Cake Masterpieces

Mrs. Neilsen's fruit cake descriptions are almost too descriptive. You can almost taste them in the columns of Gleanings. But would they not make fine Christmas gifts on the part of those who have the "gift" to make them?

Boosting Honey

"A Banker Boosts Honey" (page 682) has a suggestion in the concluding paragraph that sounds good. We don't prepare our own butter or cheese for market any more, but often depend on a cooperative, locally owned creamery with central organization. Why can't we do likewise with honey—have a central storage and bottling plant as Mr. Roddy mentions?

This and That

On page 686 we have another article from Allen Latham, who evidently believes in the "smite and spare not" precept of the old Sanhedrin. His comments are always interesting, and valuable in that they help to explode many a fallacy. He also shows the necessity of an upper winter entrance in his account of the smothering catastrophe. As to laying workers, I always believe that they came through the feeling of **seeming necessity** on the part of the bees, not merely chance.

On page 689, in my comment on Mr. Conner's October article (page 612), I naturally meant to say "exponent"—not "opponent". His discussion of the top entrance was certainly not in opposition.

The editorial on supersedure (page 694) ends with a sentence valuable to those in doubt about retaining a "naturally" produced queen. It is a true statement. If the stock is good, the result if the supersedure will be likewise.

The item on selling drone brood (page 703) brings back memories of Old Drone, who used to appear in the columns of Gleanings. Back in 1930, I believe it was, he had a similar idea; but alas! he and Ab were always unlucky, financial or domestic. $250 worth of drone brood means a lot of bad combs disposed of—a double profit.

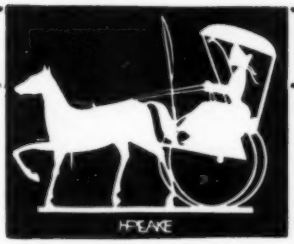
Through all the discussion of wintering, including the moisture problem, it is well to heed Mr. Deyell's advice in his Talks to Beekeepers. If you have a **successful** method of wintering, stick to it. And on page 709, aren't the pictures unusually good? They effectively confirm his statement that the food chamber is the key to successful beekeeping.

The American Honey Institute, (page 721), needs little comment. Mr. Deyell tells the story effectively and clearly. Might I add, that when you **have** sent in a contribution and received the Institute material, be sure to read it. You will find it worth your while. I know I did.

Middle River, Minn.

XUM

Spinster



Jane Says:

Honey Boy's forerunners have come, and did they hum, when unloaded from the truck, after their 490-odd miles of travel! Yes, they were bees, of course.

Now, on a mild day,—and we should have Indian Summer, yet,—I shall hie me out to their domicile, and sit and listen to their crooning hum. "Crooning", to me, always suggests an old negro mammy, singing to her child to lull it to sleep. The popular modern kind hasn't half the melody nor sweetness.

I was really lonesome for bees. They are still unpacked, Boy wanting to superintend that matter himself. Getting real manlike, with his superiority complex. But, thanks be, should they not come through, he cannot blame it on a woman. We may have the satisfaction of saying, "I told you so!"

Survival of the Fittest

There has been no severe weather yet, just a few snow flurries, and frosts at night hard enough to hold up plowing operations until afternoon, and a strong colony with plenty of food will not mind a little thing like that. Besides, these are those runaway maverick swarms I told you about. I've known a colony to come through that was out-of-doors all winter and quite unpacked, right in this community. It's owner didn't care if it lived or died, so of course it lived. Most of the unwanted things in life do live. It must be for our own good, too. If too easy, there would be no such strong characters as there are today. We need obstacles and opposition. It acts the same as exercise for developing muscle.

I did not realize that Christmas was so very near, until one of our girls, a teacher, came home for a week-end. She had the days counted, and it surprised me. I haven't time to count days. They simply fly by, so why count them?

That Fruit Cake Recipe Sounds Good

But, in the last Gleanings, I saw a fruit cake recipe where honey is used—one of Mrs. Nielsen's—and I must try it. I'm all out of practice making cakes and such goodies. I always leave it to the girls. Now they are all away, so I'll take a chance on it. Here may be Jane's opportunity to cause a good many tummy-aches for Christmas, but what is one more, anyway! No insinuations meant, Mrs. Nielsen. That cake sounds delicious, and if I can but make it to taste as good as it sounds, I'm afraid I'll be elected to make Christmas cake until I'm too old to see.

Our people are growing more honey-minded, here in Canada. Every week brings more and more honey recipes. Now, should Boy's apiary grow and thrive, as it surely must, what need we worry over sugar shortage! We can do without it, having a much better sweet.

Advertising Honey

And along with Boy's sales—if he'll take me trucking with him—(not dancing, remember!) I'll hand out a honey recipe or two, and suggest its use. Isn't that good business? I might even distribute a few honey cookies, or something extra special made with honey. And there you are. Increased users, increased demand, increased sales.

Most people like, and are always looking for something for nothing. When that something is given as a favor or as a sample, no one will refuse it. Once introduced, the job is done. Isn't that simply good advertising at very little outlay?

And now from my peaceful home, to you in your peaceful homes, Christmas greetings. May God keep war from our shores, and give us victory over force and aggression.

"Peace on Earth,"—the angels' message, has been unheeded for many hundreds of years. It appears only the Millenium will bring it, but may this war end all such wars.

Again, Merry Christmas to you all, and may I remind you of the boys in the muddy trenches, so far from home on that great day. If you possibly can, make some of them happy. I'll try my cake out on the family before sending it.—Spinster Jane.

XUM

Just News

The December meeting of the Middlesex County Beekeepers' Association will be held on Saturday evening, Dec. 30, at 7 P. M., in Concord, Mass., at 19 Everett St. Prof. L. B. Crandall, Extension Apiarist of the Connecticut State University, will speak on "Repellents". Mrs. Jones will be chairman of the supper which will include fish chowder, honey baked ham, honey rolls, cabbage salad, honey apple and honey mince pies, pickles and coffee.—A. M. Southwick, Pres.

• • •

The Minnesota Beekeepers' Association will hold its annual meeting and convention in Minneapolis on December 5 and 6, with headquarters at the Radisson Hotel. A large attendance is anticipated and beekeepers from other states are welcome. An interesting program is in prospect. Come and meet your friends in Minneapolis, the date, December 5 and 6.—Norris J. Ellingson, Secretary.

• • •

The Ohio Beekeepers' Short Course in Bee Culture is being scheduled for January 29, 30 and 31 of Farmers' Week at the Ohio State University. A cordial invitation is extended to all beekeepers to attend these educational sessions.—W. E. Dunham, Extension Specialist in Bee Culture.

• • •

Bulletin 631, entitled "Physical and Chemical Properties of California Honeys", by J. E. Eckert and H. W. Allinger of the University of California, Berkeley, Calif., made its appearance in August, 1939. This work was undertaken to supply technical information on the more important California honeys. The bulletin is well worth a careful reading.

• • •

The New Jersey Beekeepers' Association will hold its annual convention on Thursday, January 25, 1940, in the Lodge Room of the Moose Hall, 491 East State St., Trenton, N. J. In the morning the reports of the secretary-treasurer, and the Standing Committee will be heard, as well as a talk by John Conner, followed by one by James I. Hambleton. In the afternoon, followed by the election of officers, several talks will be given by good New Jersey beekeepers. A visit to the Farm Show in the Armory is also included in the program. A dinner at 6:30 at the Y. W. C. A. will follow, and all beekeepers are cordially invited to attend.

• • •

The new officers for the American Honey Producers' League, appointed at the National meeting at Sacramento, California, are as follows: Pres., T. W. Burleson, Colusa, Calif.; Vice-president, J. W. Holzberlein, Grand Valley, Colorado; and Secretary-Treasurer, L. M. Gates, Lincoln, Nebraka.

• • •

Enthusiastic bee meetings were held at Walla Walla, Washington, and Portland, Oregon, during the first days of November. At these two points under the tutelage of Dr. H. A. Scullen, beekeeping is being developed very rapidly. Alfalfa and sweet clover in and near Walla Walla, and fireweed in and near Portland, Oregon, in the lumber districts, are yielding large amounts of good honey.

• • •

At the annual meeting of the Board of Directors of the American Honey Institute held in Sacramento, California, November 8, 1939, the following officers were elected for the coming year: Lewis W. Parks, Watertown, Wisc., chairman; A. G. Woodman, Grand Rapids, Mich., Vice-chairman; M. J. Deyell, Medina, Ohio, Secretary-Treasurer. The Finance Committee consists of V. G. Milum, Champaign, Ill., Chairman; H. M. Krebs, Sacramento, Calif.; A. G. Woodman, Grand Rapids, Mich., E. T. Cary, Syracuse, N. Y., and J. W. Holzberlein, Grand Valley, Colorado.

• • •

At the annual convention of the Florida State Beekeepers' Association, on October 16 and 17, the following motion was passed:

That the Florida Beekeepers' Association go on record as being opposed to the use of carbolic acid in taking off honey, and a copy of this motion be sent to the Beekeeper's Item, The American Bee Journal and Gleanings in Bee Culture, with the request that it be published.

XUM

Editorials

Our industry is yet in its infancy and may be on the eve of a new era. Those affiliated with beekeeping and allied interests will do well to keep an ear to the ground for future developments.

• • •

The Home Economics Extension Service of Rutgers University is planning to increase its informational service to homemakers through the various newspapers of New Jersey. The American Honey Institute was very much pleased to cooperate by furnishing material on honey.

• • •

Unless we have more rain for the drouth areas than has been reported or unless we have plenty of snow this winter the white clover of the summer may have been killed out. The fear of no white clover crop next year may cause beekeepers to hold this year's crop for next year's market.

• • •

Off-flavored Honey In some regions of the U. S. A. the honey crop has been considerably below normal this past season. Furthermore, the quality of honey produced in some of these regions is not up to par. The honey has an unpleasant flavor which makes it unsuitable for table use.

Obviously such honey does not command the top price nor does it bring repeat orders. The question is, just what should be done with such honey?

In the first place, beekeepers who have a local trade and have been handling high quality honey should not think of substituting "off-flavored" honey for good-flavored honey. To do this would mean dissatisfaction and a loss of customers. If such "off-flavored" honey is sold it should be with the understanding that it is not high quality honey.

It has been suggested that all "off-flavored" honey be sold to bakers. This may not be the solution, because bakers require good-flavored honey so that their baked good may not have an off-flavor.

There has been a tendency during the past few years to "palm off" all kinds of honey not fit for table use, on to the bakery trade. Some of this honey has been so poor and dirty that bakers have become disgusted, have discontinued the use of honey in their products, and have gone back to sugar. That is bad for our industry. It would require a lot of high-powered salesmanship to induce those bakers to return to the use of honey, even though they could be assured of getting good honey.

Fortunately, unpalatable honeys are comparatively scarce but sometimes, especially during lean years, bees do gather such honeys. It is possible that in the future new uses for honey may be developed that will absorb all honeys with undesirable flavors, leaving only the best honeys of all colors for table use as well as bakers.

• • •

"Sugar Mart Hit by Indigestion" Such is the title of an item spread all over the country by the Associated Press, a copy of which is here given:

NEW YORK, Oct. 30.—Those big supplies of sugar purchased by American housewives in the first few days of the war had the market suffering today from what some dealers called a case of "indigestion." Refiners moved the price of sugar at wholesale down another notch in hope of bringing in more business.

"It's just a case of indigestion," said a sugar man in explanation of the falling prices. "The trade has to wait for housewives to use the surplus they bought in misguided fear of a war shortage."

He said government figures indicated consumers bought at least twice their normal demand as housewives raced for the grocery store on the war news, remembering what happened to the supply and prices in the World War. The buying swept retail shelves clear in spite of trade and government assurances there was more than enough to meet needs in the warehouses and at the producing sources.

This means that sugar in the meantime will resume its normal price, or worse yet, drop below normal until the housewife uses up her supply.

During the Great War when sugar became scarce or was rationed out, the price of honey took a sharp rise. In this war history is not repeating itself. No one knows just what is to happen, or whether honey will take a slight slump following sugar. There is a real danger that producers may hold their honey too long. A cheap

XUM

sugar may cause bakers and manufacturers to drop honey and use invert sugar.

Advice is cheap and sometimes is dangerous and so we offer none, but it is a pretty safe guess that when sugar drops honey will not go up unless the drouth over the country has made a cut of first honey crop estimates.

• • •

The Sacramento Meeting The National Beekeepers' Conference held at Sacramento, Cal., November 7 to 10, proved to be one of the great events in apicultural history, not from the standpoint of attendance perhaps, but from what was said and done. Thanks to Dr. J. E. Eckert of Davis, Calif., and H. M. Krebs, State Apiarist at Sacramento, who worked unceasingly to prepare for and organize the program, the quality of the papers and the discussions were of the best, if not superior to that of any other National meeting, ever held in this country. Over seventeen states were represented on the program with national speakers in the employ of Uncle Sam and the various states.

The banquet held on the evening of the 8th was unique in every respect. The music from fine musicians brought forth round after round of applause and as usual, the toasts, not all serious, were above the average.

A feature of the evening was the presentation of a big cake in the form of a straw skep to "the grand old man of California" in the person of Cary W. Hartman, 84 years old. His speech of thanks was peculiarly appropriate and beautiful.

Mrs. Harriet W. Grace of the American Honey Institute made a fine impression at this convention.

A detailed report will be given in our next issue.

• • •

Moderate Winter Packing Dr. C. L. Farrar, with whom we have had considerable correspondence on winter packing, in one of his letters writes:

In speaking of wintering, I usually add "adequate protection". I would rather have single-walled hives without packing than have heavy packing, yet a moderate amount of packing or plain wrapping seems to reduce the consumption of stores slightly. Any benefit we get from packing comes from slowing up the rate of temperature change within the hives, allowing the cluster to expand or contract as outside temperatures "require". The colony does not heat the unoccupied space within the hive, and therefore, packing does not serve the same purpose as our own overcoats do. During the protracted cold spell, the packed hive can get just about as cold as the unpacked hive. In my work at Massachusetts, I recorded three or four hundred thousand temperature readings inside two-story colonies equipped with 110 to 120 thermo couples. A strong colony insulated with ten or fourteen inches of dry packing material, having a reduced entrance at the end of the tunnel, had a minimum temperature of 22½° when the outside temperature was 5°. In another colony located in a constant temperature case, maintained at 64° had temperatures ranging from 8 to 20° below the case temperature inside the hive, but away from the cluster. The disadvantage of heavy packing seems to come from preventing the colonies taking advantage of flight periods during the winter.

What Dr. Farrar says correlates with our own experience.

• • •

Abundant Nectar Necessary for Surplus Honey A number of beginner beekeepers have written to inquire why their bees did not store more surplus this past season. Some beekeepers seem to think that all that is necessary to secure surplus honey is to place supers on hives of bees, to be filled. If this were all there is to it there would be no crop failures.

In order to secure the maximum honey crop there must be, (1) very populous colonies of bees, superior in honey-gathering qualities, ready for the honey flow, (2) good beekeeping equipment, (3) intelligent apiary management, (4) a good beekeeping location which means an abundance of honey and pollen plants, and, last but not least, (5) favorable weather for nectar secretion and bee flight during the time the surplus crop of honey should be harvested. If one or more of these conditions are absent the amount of surplus harvested will be reduced proportionately.

From reports received each month from various parts of the country it would seem that low yields of honey in some regions this past season were due to the lack of nectar plants and adverse weather conditions during the honey flow. These conditions are beyond the control of beekeepers, unless perchance they move apiaries to locations where honey plants are abundant, and that is what many commercial beekeepers are doing nowadays.

But the fact remains that in order to secure the largest possible crop of honey, nectar must be abundant. Beekeepers, both back lot and commercial, must give more attention to this important requirement.

The Sweet Clover Weevil This is mentioned by A. V. Mitchener of the University of Manitoba, Winnipeg, Canada, in the September issue of the "Western Canada Beekeeper", and was reported for the first time early in 1939 in the Province of Manitoba. Adult beetles eat sweet clover leaves, especially young seedlings. The beetle is about $\frac{3}{16}$" in length, is dark colored and covered above and below with a grey pubescence which sometimes has been rubbed off, in which case the beetle assumes a still darker color. The eyes are black. Growers of sweet clover, also beekeepers, should be on the look-out for this insect and examine plants to see if holes have been eaten in the leaves, and report findings to their respective provincial or state colleges or universities.

• • •

Why the Crop May be Short Elsewhere mention is made of the possibility that last summer's and fall's drouth was more extensive than early reports indicated. If so, a part of the early summer's yield may be absorbed by giving supers of honey for winter.

We know of one large producer whose early yield was used for winter stores. If he could have had a fall flow instead of a drouth he could have had some honey to sell.

The price of honey may stiffen, not from war or the threat of war, but from an actual shortage of the crop, depleted because there was no fall flow.

The feeding of sugar syrup is a practice that has gone out of vogue and is practiced only in an emergency. It is not a natural food like honey. A good fall flow from aster, goldenrod, or what not, releases a lot of early-gathered honey for the market.

• • •

The Drouth in the West More Extensive Than First Forecasts Indicated Evidence continues to come in that the drouth of late summer and fall in the West has been much more extensive and severe than first forecasts indicated. The Western papers are saying that wheat is not coming up where sown in some areas. In other localities farmers are not sowing it, fearing that it will not germinate. In numerous other areas of the West they are not even preparing the land fearing another dust bowl experience. The Senior Editor has seen evidence of all these conditions in a recent trip in the West.

The Remedy

Most of the great West farming lands are black soil and alkaline to slightly alkaline that will grow the legumes. Why not sow sweet clover or alfalfa that will grow and thrive where wheat or corn would fail to come up for lack of moisture?

We have been over drouth areas both East and West this year. The outstanding fact is, that where there is alfalfa, there is a verdant growth of green for either pasture or hay. Every other farm crop except sweet clover and alfalfa is brown and dead.

Some 20 years ago, and just after the Great War, the price of wheat fell in the Dakotas. The farmers and the banks went bankrupt. Some one had the bright idea to put in sweet clover and alfalfa. They did so, and presto! came the cattle and dairy industry and prosperity. Beekeeping on a large scale followed in the wake. Then came the era of milk and honey and it is still going strong.

Now then if the farmers of the great West, who have been producing wheat and corn would now turn to sweet clover and alfalfa the problem of drouth and the dust bowl that sends dust into Texas and the Gulf, would be solved.

The change of going from wheat and corn to alfalfa and sweet clover can not come at once, nor be affected by just sowing sweet clover and alfalfa seed. It is here that the county agent can tell when and how to do it.

Already a great change is taking place. The Western papers of Montana and Wyoming tell of the enormous crops of alfalfa seed, and where it is produced there is honey.

All this means that as the dairy and cattle industry grow in the West so will the bee business develop.

Horace Greeley use to say, "Go West, young man". Good advice today, but don't go too fast. Take the automobile and follow after the sowing of alfalfa.

It should not be forgotten that the established beekeepers will not welcome the oncoming of the new. That is perfectly natural. See them and tell them that you are not proposing to squat your bees in their territory. If you go at it right, they will tell you where there is the new development of alfalfa and sweet clover, if any.

XUM

From North, East, West and South

NORTHERN CALIFORNIA, November 3.

Weather: October here in the Bay Region gave us one of the most perfect months of the entire year—clear and warm. In the Valleys there were scattered showers and in the mountains, rain. In the higher altitudes the heavy snows of winter have a good start. For the entire northern part of the State, the weather has been such as to give the honey plants a good start for next season.

In a few localities the rains have kept the late flowers blooming. They are helpful in furnishing nectar and pollen for winter stores. Beekeepers who are careless about putting their bees in proper shape for winter will experience loss in the spring because of shortage of honey and pollen.

Honey Flow: The honey flow is over and there is very little extraction yet to be done. At meetings it is interesting to hear beekeepers tell their experiences. According to the discussion, Mr. A. secured a fairly good crop, while his neighbor, Mr. B. admits he got none. Such reports are common. We will hear more of the same kind of reports at the coming convention. We may be able to get some light on the great varieties of conditions and results which have cut our production to an average of approximately 40 pounds to the colony.

Honey Market: So far the war has had little effect on honey prices. It is very doubtful whether it will produce any great demand for our honey. The honey packers are making inquiries for honey and sales are keeping up pretty well. At the honey exhibit of the California State Beekeepers' Association in the Golden Gate Exposition there were constant requests to buy honey. Among the many questions asked, the following took the lead—"Where can we buy honey?" The attendants answered, "You will find good honey in your local grocery". This did not satisfy. We put the question to one of the leading packers and his reply was that the exhibit had caused many questions of the same kind to come to them. We may profit from such interest.

Miscellaneous: On account of the many requests to buy honey at the Honey Exhibit of the Exposition, we concluded to put on sale a server containing one pound of honey and sell it for one dollar,—postage paid to any place in the United States. We had orders from nearly every state, Alaska, and Hawaii. There is a lesson in this also.—Cary W. Hartman, Oakland, Calif.

• • •

SOUTHERN CALIFORNIA, November 1.

Weather: A good early rain gave vegetation a wonderful start. The recent warm weather and hot winds are drying things out. Unless we have more rain soon much of the benefit will be lost as grass is already drying up. The trees and shrubs that root deeply will retain some of the benefit of the early rains and should be the better for next season's honey prospects.

We have two directly opposite prophecies as to the coming season, each based on the unusually heavy rains that fell in September. One says that the early rains predict a wet winter with heavy rainfall; the other that the heavy rainfall early foretells a dry season with light rainfall. Your guess is as good as any. At present the weather is most delightful, unusually warm for November first, with a few fleecy clouds travelling toward the east to keep us hoping.

Market: There is a good demand for the little honey left in the hands of the beemen. We feel safe in saying that, had the beekeepers held the '39 crop until today, an advance of one cent above prices offered at the opening of the season could be realized.

Beeswax is also in good demand at prices three to five cents above those offered early in the season.

Honey crop was only fair averaging from forty to as much as eighty pounds in some instances. Beekeepers have united and are holding several thousand cases of honey under option to a large brokerage firm at a reasonable price. This is the only large holding of honey that we know of still in the hands of the producers. If more attention was given by the beekeepers to this method of selling, especially in regions where certain kinds of honey such as orange, sage, buckwheat and clover predominate, we feel that it would be beneficial both to the producer and the honey buyer.

Miscellaneous: The unusual rains that fell over the southern part of our state

in September made desert verbenas and other flowers bloom five months ahead of the usual time. What is known as the desert country received some of the heaviest downpours. At one town in our county, on the desert, it is said that the rainfall in September was equal to the September rainfall of the past fifty years, some eleven inches having fallen.

The early closing of the Fair at San Francisco will likely have some unfavorable effects on the attendance at the meeting in Sacramento as many beekeepers had planned to kill two birds with one stone and attend both. The dates are most unfortunate for us as they conflict with other important meetings. —L. L. Andrews, Corona, Calif.

• • •

TEXAS, October 30.

Weather: October was a continuation, if not an improvement, on the drouth that has been steadily increasing for almost three years. Light rains in July and August helped the native plants somewhat and gave the bees the impulse to start fall brood rearing. Those bees that were well cared for have gone into winter quarters at the end of October in good condition. A majority of the bees through the southwest portion of the State are poor in stores and low in the number of bees. One of the most hopeful things about beekeeping is that the bees seem to know when to conserve stores, and so often have colonies of bees under the poorest conditions gone through the winter that some people have been led to teach that small poor colonies give better results than normal ones. Very recently the Agricultural Adjustment Administration in compiling the farm conditions in Texas issued a map which shows definitely the poor conditions which exist in the beekeeping sections of the State. The soil through much of Texas is without water. Many of the native trees and shrubs have died. If rain does not occur between November 1 and January 1, there will be no chance whatever of a crop in the southern part of Texas from horsemint or other annual plants. There will be, however, a chance from mesquite, guajillo, and catsclaw.

Miscellaneous: The celebration of Texas Honey Week seems to have been a success. Public meetings were held in San Antonio, Navasota, Uvalde, and Waxahachie. These were of a social nature. Special displays were made in store windows. Uvalde specialized in a display of cookery in which honey was used. San Antonio made a display of things interesting to people who were not beekeepers but which would call attention to honey. Navasota and Waxahachie emphasized the use of honey in the home. Plans have already been made for extending the celebration of Honey Week to a majority of the larger towns in Texas in 1940.—H. B. Parks, San Antonio, Texas.

• • •

MONTANA, November 1.

Conditions have been ideal for bees this fall. Sweet clover is still in bloom, also a few dandelions and other bloom. Grasshoppers are fanning themselves on high mountains. A few days back we had snow four inches deep but the sun came out and the temperature went up to 70 right away.

Crop: The first half of the season was very discouraging but the latter half was better. Most colonies made 100 pounds or over. However, some yards got disease and other troubles that ruined the season for them. No big crops were produced here, but some places in Montana reported very heavy yields.

Market: Some distress lots of honey have been sold at lower figures than last year. Some of the largest producers have fair prospects of moving honey soon. I don't hear of any being interested in the offers being made (by brokers from the East). The local market has taken more than usual this fall and some of it was bought for lower than last year, most of it in pails at 7-8½c per pound.

Beeswax: Beeswax has a very fine color. Some has been shipped East at 19c per pound. Most producers are expecting more.

Miscellaneous: We have had such a lovely fall that one would expect hives to be heavy with honey, but such is not the case. Many colonies have less than 30 pounds of honey; some few are very heavy. Quality, color, also very fine flavor, compose this year's crop of honey. Some report heaviest bodied-honey ever seen. Very little outside honey is coming into the state. Last year some very poor honey came in, but this year we have some on the market that beats anything I have ever seen. Before it would granulate with wax on top, and the consumer could not tell what it was. This year, some old combs have been melted with water added. It is darker than cooking molasses. Some of our own producers have packed 40,000 pounds in a season with a written guarantee on each container, without a pail being returned. We have a very fine market here and we get some very fine write-ups and favorable radio broadcasts. —Parson Pile, Corvallis, Mont.

XUM

MICHIGAN, November 6.

Weather: Continued drouth in late summer was a disadvantage to seedings and prevented a fall nectar flow in many areas. In one of the best producing areas, eight colonies on scales recorded an average loss of over 20 pounds per colony from August 15 to October 15. Much rain will be necessary to make a 1940 honey crop.

Crop: The crop is smaller than earlier reports indicated.

Market: Carlot prices are at least ½ cent higher than last year, with occasional sales at 1c advance. Retail sales have also advanced slightly. The movement has been fair to good.

Miscellaneous: Commissioner E. A. Beamer of the Department of Agriculture has appointed Dr. Howard Potter, Ithaca, Mich., as honey inspector for Michigan. Dr. Potter will train food inspectors in honey requirements so that they may intelligently inspect honey wherever found. He will perform carlot and truck lot inspection of honey upon request. All retail pack honey must meet the U. S. Fancy grade and the label must show whether the contents are light or amber. At a hearing conducted by Mr. Davis, Director of the Bureau of Foods and Standards, in late October, Michigan beekeepers were almost unanimous in approval of this effort to improve the quality of Michigan honey.

Elmer Carroll, Editor of the Michigan Beekeeper, The Honey Harmonizers Band, and Arvid Jouppi have been conducting a series of 15-minute broadcasts over the Michigan State College radio station WKAR, entitled "Honey Facts".

The winter meeting of the Michigan Beekeepers' Association will be held at the Horticultural Building, M. S. C., E. Lansing, Wednesday, Dec. 13.

As this is being written, the buck-hunting members of the beekeeping fraternity are frantically fixing to finish packing their bees so they can leave for the north woods to chase the "elusive" buck. Yes, Sir, we're goin', too.—R. H. Kelty, E. Lansing, Michigan.

• • •

VIRGINIA, October 7.

Weather: In general the weather this summer was very good. Some sections had too much rain. Other sections were too dry. We got a very short crop of honey except a small section in the East and a small section in the West. We beekeepers have not lost hope, and are looking to next year to bring us that good crop, and who knows, 1940 may be the year.

Market: Honey is selling very well. I believe the consumption of honey is increasing and if it is not rushed on the market at a low price most beekeepers will be able to move all of their honey long before the new crop comes and will also be able to sell the honey from sections where there was a good crop, to supply their trade. And I think this should be done. I was talking to one of Northern .Virginia beekeepers a few days ago. He produces a quantity of "cut comb honey". He was able to sell the most of his crop to one company at a very good price. So many beekeepers can produce a fancy grade of honey but have not spent much time learning how to sell it, and will let it go at any price.

I noticed while on a trip in Canada that school children were using lithographed pails as lunch pails. I believe there is more honey used in Canada per person than in the States.*

Miscellaneous: I was very much interested in Mr. W. A. Coulter's article on page 636, in regard to increasing the beekeeper's income by improving the bee pasture. So much timber has been cut here in Virginia that in sections where bees were dependent on these trees for their honey the crop has been less and less each year. Beekeepers will either have to sow clovers to improve pasturage or move to other localities.

I would like to call to the attention of Virginia beekeepers the fact that the appropriation for bee inspection will come up this winter when the Virginia Legislature meets. Be sure you see or write your Representative asking his support.—Henry W. Weatherford, Vernon Hill, Va.

[*Yes, the per capita consumption of honey in Canada is about 3 pounds and here in the U. S. A. it is a little over 1 pound.—Editor.]

• • •

GEORGIA, November 2.

Weather: Rain in the northern part of the state during May and June and the first part of July, was the cause of almost a failure of surplus honey in that section. This was true also of the Piedmont regions, yet some surplus was stored. September and October were dry in the Coastal Plain region, but streams were well filled throughout July. The first light frost came this morning with little damage to vegetation.

Honey Flow: Mexican Clover, our greatest summer honey plant in the coastal plain yielded sparingly. The bees continued brood rearing and finally filled

up the brood nests leaving colonies in the best of shape for winter. Cotton and other field crops in the coastal plain also gave a light yield. Asters and goldenrod in the mountain region were almost a failure due to the poor condition of the bees, because of spring and summer failures.

Honey Market: It has been developed wonderfully, yet not sufficient to take up the supply of honey produced which has been greatly on the increase in late years. Then, too, honey from other states has poured into the great Southeast thereby glutting the market during summer and autumn. Consequently honey is hard to sell on any southern market. Prices are low, below the cost of production. The state's crop of white tupelo-gum honey, which was short this year on account of continued bad weather the latter part of April and first part of May has long since been sold. Our main crop is gallberry which remains unsold. Chunk honey is moving fairly well while the extracted is slow.

Miscellaneous: This is a happy land of surprises for beekeepers, because of the fact that we never know what the weed family has in store. In 1938 we had the Indian broomweed that gave a good surplus of fine honey throughout the forest areas. This year it did not appear. The waterweed did appear and gave a good surplus all through the swamp and lake areas. It grows in the water with roots deep in the muck. The surplus is white honey, and we believe to be non-granulating, since we have not been able to freeze it as yet. It is selling well because of its fine flavor, thick body, and very light smoky color.—J. J. Wilder, Waycross, Ga.

• • •

IOWA, November 9.

When the final preparation of colonies was made for winter it was evident that the fall had been hard on them. In most sections of the state the honey flow shut off in late summer and did not reoccur during the fall. This led to a condition of reduced population of almost entirely old bees together with reduced stores. While there was but little feeding of sugar syrup or adjustment of natural stores, it is a fact that many colonies went into the winter somewhat deficient on stores and will need attention during the early spring if the maximum results are to be obtained from the colonies.

Weather: Sub-normal moisture conditions have existed over the entire state. There has been slight relief in some restricted areas. This will mean that honey plants will have a hard time withstanding winter and unless plentiful spring rains occur, it will mean that honey plants will have a difficult time coming through the spring. New seedings of legumes failed in a good many localities.

Miscellaneous: It is interesting that the conditions in Iowa have been favorable enough during 1940 to entice several extensive producers from adjoining states to move in at least temporarily.

It is interesting to note two possible trends of importance to the honey producing industry. These are the possible disappearance of the backlotter and sideliner with the increase in the number of commercial beekeepers and in the extent of their holdings. The second trend is the shift of baking from the home to the commercial bakery which tends to reduce the effectiveness of a campaign which has been conducted to increase the use of honey by the housewife, especially in the baking of cakes, cookies, and breads.

The Homemaker's Hour of Radio Station WOI cooperated 100 percent in recognition of National Honey Week. Three discussions were given over the radio and each day mention was made of National Honey Week. A compilation of these discussions and recipes was made available in printed form and the demand for this has exceeded all expectations.

There are questionable factors which prevent the development of the program for 1940 at this time. The disturbance of the export demand will have an influence upon the honey situation and unless the domestic demand can be improved, there may be difficulty in disposing of large increases in honey. It is possible that more emphasis will of necessity be placed upon local marketing which has been shown to be effective in some instances. The low price of honey this year will have a deterring effect in conjunction with these uncertainties in any expansion which might have been contemplated for 1940. It seems evident that the expansion of the last three years has definitely slowed up for 1940.

Mr. J. I. Hambleton, in charge of the Bee Culture Laboratory, Washington, and Dr. A. P. Sturtevant of the Intermountain Station at Laramie, Wyoming, were visitors at the Iowa Experiment Station in November. The purpose of the visit was to check on the results of 1939 and to consider plans for the program for 1940 relative to the investigation pertaining to the development of disease resistant stock of bees.—F. B. Paddock, Ames, Iowa.

XUM

PENNSYLVANIA, November 10.

Crop Conditions: The fall honey flow from goldenrod, silverrod, and asters was short in northern Pennsylvania. This flow followed a short crop from clover and buckwheat so that the season as a whole was considerably below average. The beekeepers in a few limited areas, such as Tioga, Lycoming, and Erie counties reported a fair surplus but a surplus below that obtained during any of the past few years.

When September rolled around very little honey was present in the brood chambers and it looked like starvation or extensive fall feeding. The white aster then came into bloom and produced considerable honey, most of which went towards filling the empty brood chambers. In some localities, the flow was so heavy the bees filled the brood chambers and restricted egg laying. This, of course, means a shortage of young bees for winter. The poor quality of both the summer honey and the honey from white aster, plus the shortage of young bees does not make a very encouraging picture for winter. As conditions stack up now we may expect rather heavy winter losses. In the northern and western sections of the state many colonies are still short of winter food.

Miscellaneous: A number of our beekeepers are trying a small top entrance, again this winter, in the hope of reducing winter losses. An auger hole three-eighths inch in diameter is used for the top entrance. This opening permits the damp air to escape and keeps the inside of the hive drier. There is less molding of combs and the top entrance eliminates entirely losses from suffocation. Results have been favorable during the last three or four years where this type of entrance was used. The usual bottom entrance about four inches by three-eighths is kept open. The top entrance is still in somewhat of an experimental stage with us.

Market: Some of our larger beekeepers are buying clover honey in large quantities to keep their markets supplied. Several carloads have been reported to date.

One of the unusual developments of the season was the quality of late fall honey gathered in Erie County. This honey was gathered from the blue aster and was water white in color and of fine flavor. It resembled clover somewhat in both appearance and color. It was a welcome addition to a bad season.

Retail price changes have not been significant but the wholesale prices have advanced some.—Edwin J. Anderson, State College, Pa.

• • •

MANITOBA, November 10.

Weather: There has been very little rain or snow during the past month. The past week has given us lovely sunny days with the temperature rising as high as 50c. Ten days ago it seemed to promise winter and some put their bees in winter quarters.

Honey Crop: Reports on the honey crop are coming in in every mail; to date about 300 have reported showing an average close to 100 pounds per colony. Mostly white honey but not as snowy white as the 1938 crop. The crop has been very uneven. Reports run from nothing to 300 pounds per colony. The north has had the good crops. South of the mountains we had hot, dry weather, temperatures running high just after sweet clover cutting. This seemed to cook the second crop completely. North of the mountains it is reported they had showers twice a week during this hot weather and the clover continued to grow and yield nectar. Under these conditions 200 to 300 pound averages were secured. Strong wintered colonies and early packages gave 100-pound averages in the driest districts but wintered colonies that were divided and late packages yielded little or no surplus. About the poorest report states that 350 packages hived on foundation around May 24th gave no surplus and were united up to 250 to prepare for winter. This from an experienced operator represents a summer's work lost. It was a case of a package shipper booking more orders than he could fill on time.

Honey Prices: Honey sales were draggy up to the first of September but as soon as war was declared a sugar shortage developed almost overnight. I left for a vacation in Eastern Canada on September 15th. At that date honey was retailing at 65c for tens in our department stores in Winnipeg. When I returned two weeks later the price was 80c and the next week 85c. At once everyone interested started to buy and jobbers, retail stores, and householders loaded heavily.

Reports show that nearly all the new crop and the surplus of 1938 honey passed out of producers hands in three weeks. Federal Government reports show more honey in storage in Winnipeg than ever before reportd but this is all in the hands of selling agencies.—L. T. Floyd, Winnipeg, Manitoba, Canada.

WYOMING, November 11.

Weather: Drouth has caused considerable concern to stockmen and railroads have granted special inbound feed rates to the dry areas, as an aid in the wintering of live stock where feed and hay crops were short. Beekeeping fared much better than the live stock industry because of being carried on only in the irrigated valleys, still the total production of honey is about one-third less than last year. Moisture is definitely lacking in all parts of the State. Plowing is difficult to impossible because of the lack of fall rains. Precipitation has been negligible since June 15, and the weather has continued sunny and mild which is unusual for this late in the fall.

Market: In the northern part of the State local markets are discouraging. Chain stores in Sheridan have out-of-state honey for sale at 35c per 5-lb. pail. I have not sold any for less than $5.40 per dozen, but naturally sales have been small at such a difference in price. In the southern part of the State sales have been better than a year ago. I purchased in Sheridan a 5-lb. pail of grease for my truck for 70c, only twice as much as a pail of honey of the same size, a splendid reminder of what wonderful salesmen we have in the beekeeping industry.

Miscellaneous: It is speculative what effect this dry weather will have on honey plants for next year. Bees are going into the winter in good average condition, and most of the packing has been done because of such favorable weather. Most all lines of business are trying to increase their sales with the threat of price increases owing to the war. How the public can respond to much price increase with the continued lack of buying power makes one wonder. As to honey, if we could have a more willing market at something like a fair price it would be a tremendous help. Carload honey ought to bring 6 cents per pound to the producer and that should not be considered profiteering on the misfortune of war. Perhaps our greatest need is to disseminate authentic information on the food VALUE of honey. If such bunk as "get a lift with a camel" can make a universal hit with the public, surely such a meritorious article as honey should not have to go begging to the extent that it does.—Earl C. Reed, Ranchester, Wyoming.

VERMONT, November 6.

Weather: From the first of July until the first of November weather in New England has been very dry. With the beginning of November we are at last having some good rains. Soil is very dry for quite a depth and will take considerable rain to restore sub-soil moisture. The weather is also cold, with freezing most of the time. Tops of the Green Mountains are already getting white with snow.

Crop: Honey this past season was of excellent quality and about average in quantity, 75 pounds per colony. Undoubtedly in some places such an average would be considered small, but to us it's pretty good. An average of 100 pounds with us is a bumper crop.

Market: This fall, for some reason, the market for honey has been very good. I'd be able to dispose of twice the amount of honey this year if I had it. Prices though are not higher but we should be satisfied with the good market. No doubt better prices in the milk market are mostly responsible. Here in Vermont, prosperity rises and falls with the price of fluid milk.

Miscellaneous: For the first time, I haven't had my bees all packed by the first of November. In fact, here it is the sixth of November and we are just starting packing. That is very bad business here as we are liable to get considerable snow from now on. There are more pleasant things than packing bees with a foot of snow on the ground. One excuse for the delay is that this fall we are building 200 new packing cases of sheet metal. We like outdoor wintering in single packing cases and use sheet metal sides and wood bottom and cover. Sheet metal sides are much cheaper and faster to build than if made of wood. Additional advantages are that they last almost indefinitely, and they are mouse-proof. Outdoor permanent packing cases to my mind are way ahead of cellar wintering and temporary tarpaper cases. Both of these require too much work in preparing bees for winter. With the permanent case packing is simply a matter of closing the entrance and placing a bag of shavings on top of the brood nest. It's a simple matter to pack 100 hives in 5 hours. With good luck, we can pack our 600 odd hives in a week.

Had about an inch of snow this morning which reminds me I still have that date with a deer the end of this month.

XUM

Also the feet are itching to get into a pair of skiis. Won't be long now.—Charles Mraz, Middlebury, Vt.

• • •

ONTARIO, November 2.

How time flies especially after we get past the half-century mark! ! ! October gave us splendid weather here in central southern Ontario and if beekeepers do not get their bees in shape for winter before old Boreas gets busy they will have to blame something other than the weather. The boys have the feeding all done and another day or two will see all colonies in winter quarters.

Market: Honey sales in a local way have continued good, but just at present considerable apprehension exists among exporters, ourselves included, as to what prospects are for the British market being opened to us. No permits at this date have been issued to a single importer in Great Britain to allow honey to be shipped there, and while the market overseas is anxious to get the honey, nothing can be done until permits are issued.

Two reasons have been given the writer attempting to explain why this embargo is in operation; first, that honey has been classed with some other products as belonging to the luxury class and, secondly, because of exchange conditions. Naturally beekeepers are not so anxious to understand why this ban exists as they are to find a solution to the problem of getting the export market opened again. Joint action is, I believe, being contemplated by many exporters and honey dealers to approach Ottawa and see if some modification to the stringent regulations, now in effect, can be obtained in the near future.

Conditions: What clover we have is in good condition, but I am sorry to say that prospects for next year are not too good. This applies to the part of Wentworth County where we have two apiaries at which place the drouth was so severe that all spring seedings of clover were killed outright. We welcome alfalfa when nothing else is in sight, but there is no getting away from the plain truth that alfalfa honey here in Ontario is at best a poor second in quality to honey from alsike and the wild white clover, commonly referred to as "Dutch clover". Some may take exception to this statement. Pure alfalfa honey here in Ontario always has an acid flavor and generally the body is not so good as alsike honey. This applies especially to second crop alfalfa, but is true to a certain extent of honey from alfalfa at any time of the year. Other countries may have a different quality of alfalfa honey but after many years' experience here in Ontario, we feel sure that we are not misrepresenting facts in making these remarks.

Miscellaneous: The Langstroth hive is standard for all of this continent and many other countries, I suppose, and will no doubt continue to remain so. This being the case it will be considered rank heresy when I say that if we were young again and starting into beekeeping that we would not use a hive of the L. dimensions. Why? Simply as a matter of dollars and cents as our experience has proven that other shaped hives give just as much surplus, need less feeding in the fall, and winter better. For over 20 years we had two apiaries only a little over a mile apart with pasturage identical in every way. One apiary was in ten-frame L. hives and another apiary of fifty colonies in a hive known locally as the Davison hive, named after the man who used this hive and who was a very successful beekeeper. Every fall we have had heavy feeding bills for the Langstroth apiary, and little if any some years, at the apiary with the Davison hives. Two years ago we united these two apiaries and the condition a year ago and this year were just the same as when the yards were a mile apart, as might be expected. This Davison hive is 16¼ inches in length, and 12 inches deep. It is 13 inches wide taking nine frames. This figures out roughly about 50 cubic inches less than the L. hives. Just why there is this difference every fall, is beyond me. Speaking with Mr. Saunders of Hornby, Ontario, a well-known and successful beekeeper, just recently, he told me that many of his colonies are in what is called the Richardson hive, similar in shape to the one I have just described, and finds things much the same insofar as stores are concerned, every fall. Of course, the advantages are easily seen, for with little fall feeding to do, we are in that much, and if we had all hives of these dimensions we would never think of using two full-depth hive bodies, so much in evidence these days.

By the time this is in print another meeting of the Ontario Beekeepers' Association will be a thing of the past as it is scheduled for the last three days of November. This is, I believe, the 60th anniversary of this association and it probably ranks among the oldest of beekeepers associations in America.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

A Little Trick in Skimming Honey

Most beekeepers think skimming is taking a spoon, ladle, knife, dipper, or what not, to skim the honey. We take a cloth, not too heavy—flour or sugar sacking that has been washed well is ideal—dampen it and lay it over the honey to be skimmed. Pat it lightly and take hold of one side with an upward pull, with the other hand make a downward movement, turning the cloth over. Have a recepticle to receive it, and thus all foam is lifted off, a trick which can be learned by any normal person.—Alfred P. Johnson, Rankin, Ill.

• • •

Queenless Swarm Breaks Rules

Often bees act entirely contrary to "Rules and Regulations"—as for instance I had last year in early September a small swarm cluster in a tree. It had been there some days before I was told of it and having no use for it I left it there. That swarm stayed on that limb for over a month, did no work, gathered nothing and gradually disappeared when cold weather arrived. Queenless swarms are supposed to always return to the place from which they came, and yet this one never did.—W. A. Rowland, Leaside, Ontario, Canada.

Good Fall Flow

We have had a very good autumn flow of buckwheat, goldenrod and aster, which has put our colonies in excellent condition for wintering. Honey sales have also been good.—R. E. Newell, Framingham Center, Mass.

• • •

Old Bruin Caught at Last

Here is a photo of a bear killed in the Okefenokee Swamp, on August 16. The night of the 15th the bear entered one of the apiaries of Mr. J. J. Wilder and destroyed 18 hives, consuming and wasting most of the honey. He next entered the hog sty of Mr. W. A. Kitchens and killed a hog and a dog that attempted to stop him. Mr. Kitchens ran out to shoot the bear but his gun snapped, so he took the stock end and beat the bear out of the hog pen. He then set a large steel trap near the bee hives. The next morning he and a party of neighbors shot Mr. Bruin. To trap the bear he stretched wire around the apiary and left an opening. He put the trap in the opening and covered it with leaves. Bears are plentiful in the swamp this year. They work havoc in the apiaries.—C. H. Huey, Waycross, Ga.

An Okefenokee inhabitant who liked honey too well.

XUM

The Vicksburg Meeting

M. J. Deyell

Beekeepers from twenty-one states and Ontario, Canada, attended the Southern Beekeeping States Federation meeting at Vicksburg, Miss., October 30 and 31. The Delta Beekeepers' and the Mississippi Beekeepers' Associations were our genial hosts.

The meeting was called to order by the President of the Southern Federation, M. S. Fortune, who presented the Mayor of Vicksburg, J. C. Hamilton. In the absence of Guy LeStourgeon (and by the way, we missed him) the response to the Mayor's greeting was made by T. W. Burleson and J. M. Robinson.

The minutes of the previous meeting were read by the Secretary, A. V. Dowling, and approved.

George W. Bohne, Luling, La., President of A. H. P. L., suggested that the League widen its scope of work giving some attention to the honey situation, also that all beekeeping organizations, county, state and regional, affiliate and cooperate with the American Honey Producers' League.

C. H. Bishop of the Public Relations Department of Sears Roebuck & Co., Atlanta, Ga., in his talk on "Increasing Consumer Demand for Southern Honeys" favors putting up various honeys separately, instead of blending them together. One of his slogans is, "Put up honey to suit every taste". The soundness of this idea was demonstrated recently in Georgia at a display of foods where different kinds of honey were shown and sold. Some liked certain flavors, others liked other flavors.

Mr. Bishop uttered a truth that every beekeeper and handler of honey should take note of; **"People may buy, first for curiosity and health, but a permanent honey business must be built on taste".**

It seems apparent that in the future more attention must be given to marketing honeys of different flavors in attractive packages and maintaining high quality that will appeal to the taste.

George H. Rea, extension beekeeping specialist for New York State, talked on orchard pollination in his state. There are three fruit areas, Lake Ontario, Lake Champlain, and Hudson Valley. The Ontario area alone would make one orchard 150 miles long by 15 miles wide. Approximately 15,000 colonies are rented annually in New York state for pollination. Colonies with less than six combs of brood are valueless for pollination and orchard packages have not been found very satisfactory. Because of the relatively short flying time during the eleven days of bloom colonies must be boiling over with bees and distributed over the orchards, about one colony per acre, for best results.

Mrs. Harriett M. Grace of the American Honey Institute told of the many contacts being made, especially with organizations handling foods. Honey, nature's oldest, choicest and safest sweet, is gaining the recogni tion it rightfully deserves. Athletic directors are using honey more and more as a means of producing quick energy and athletes over the country are recognizing the value of honey in their diet. State governors cooperated splendidly in announcing National Honey Week for the last week in October. Mrs. Grace, having majored in Home Economics, being a food and nutrition specialist, is securing the cooperation and services of home economics organizations over the country in advancing the merits of honey. The demand for honey is at the very foundation of our industry and we must have a national organization like the American Honey Institute to help create consumer interest in honey, if our industry is to advance as it should.

G. H. Cale, editor of **American Bee** Journal, in speaking of "The Breeder's Opportunities" said that the bee breeder has the beekeeping industry in the palm of his hand, also that the package bee has made commercial beekeeping and the southern shipper will continue to sell the northern beekeeper so long as he continues to give quality and service.

Mr. Cale called attention to a wide variation of results in honey production from package bees received from different breeders the same season and given the same management. Quite a percentage of queens fizzled out in a short time. This means a loss to the buyer.

Genuinely good queens must have vitality, long life, rapid laying abili-

ty and compact brood nests. To produce queens that measure up to these rigid requirements is the objective that confronts all queen breeders.

Mr. Warren Whitcomb of the Southern States Bee Culture Laboratory, Baton Rouge, La., speaking on "Factors Affecting Queen Supersedure", called attention to "Induced Supersedure", brought about by faulty handling and environment, also "natural supersedure" due to the natural wearing out of queens, which is normal. According to one speaker, J. W. Newton, of Baton Rouge, La., 18% of queens shipped North are superseded abnormally.

From work already done it would appear (1) that the type of mating nucleus hive used has no effect or bearing on supersedure; (2) that the age of larvae used in grafting does affect supersedure (young larvae—the younger the better—should be used); (3) that nectar and pollen should be abundant during the time queens are reared.

There followed a round table discussion of queen-rearing methods, led by E. Oertel of Baton Rouge. The consensus of opinion among some of the leading breeders is that honey, instead of sugar syrup, should be used for feeding cell-building colonies. None of the breeders seemed inclined to divulge any queen-rearing secrets.

Mr. H. C. Short of Fitzpatrick, Ala., did tell us how he introduces queens in mailing and introducing cages. He places a stiff paper over the wire screen of the cage and fastens it by means of a rubber band. This prevents bees in the colony from crowding around the wire screen when a caged queen is put into a colony, and, according to Mr. Short, this results in better introduction. We hope to give this method a trial next season. Thanks, Mr. Short, for this little tip. We hope this may help to solve the problem of introducing queens successfully.

We View the Remains

Prof. J. M. Robinson, Mgr. of the Bee Marketing Agreement, in his inimitable manner reviewed the history of the Agreement, its successes, its failures and its passing. In the beginning each shipper developed his own trade. In 1933, the chiseler came. It was rugged individualism vs. ragged individualism. We just love to chisel and we may cut ourselves.

The Professor made no predictions for the future. And who would be brave enough to do that? Well, we viewed the remains of the Marketing Agreement and strange as it may seem there wasn't a moist eye in the audience.

What will happen among bee shippers? Frankly, we do not know, but we have faith enough in them to believe that they will continue to serve our industry as they have in the past and that some sensible arrangement will be worked out whereby it will be possible to produce and sell bees and queens at a reasonable margin of profit.

The evening session of the first day was given over to the goofy beekeepers who interested the audience with their tall tales. Ned Prevost, a past master in story telling, led off and others followed. R. E. Foster captured first prize and A. D. Hiett received second.

The following forenoon R. E. Foster, in the absence of J. E. Starkey, Pres. of Apiary Inspectors of America, led a discussion on the problems of apiary inspectors. He said that some beekeepers depended too much on the apiary inspector. Beekeepers should become better informed on bee diseases.

The following inspectors were called on for reports: Thos. Atchison, Alabama; Edwin Lott, La.; Clay Lyle, Miss.; Ned Prevost, S. Car.; A. V. Dowling, Ga.; Homer Richards, Ark.; Chas. A. Reese, Ohio; P. G. Craddock, N. Car.; R. L. Parker, Kansas; J. Allison, Tenn., and T. W. Burleson of Texas.

The proposed model Apiary Inspection Law drafted by Jas. I. Hambleton, Washington, D. C., was presented by Clay Lyle. The inspectors voted to table it for further discussion at the next annual meeting.

The banquet, with R. E. Foster as toastmaster, was a huge success. Many took advantage of the sightseeing trip through Vicksburg National Military Park.

The following officers were elected for 1940: Pres., E. C. Bessonet, Donoldsonville, La.; Vice Pres., J. G. Rossman, Moultrie, Ga.; and Sec., H. S. Foster, Lakeland, Fla. Program Committee: R. E. Foster, Lynn Dewey and A. D. Hiett.

The next meeting of Southern States Beekeepers' Federation will be held at Miami, Fla., Nov. 19-21, 1940.

XUM

Asked and Answered

Reducing Size of 12-Frame Jumbo Hives

Question.—I have acquired an apiary of 100 12-frame Jumbo hives, in a location where the surplus extracted honey averages 25 pounds per colony, besides the winter stores. The 12 frames I consider too much for such a poor location, and I intend to reduce to 9 frames, using diaphragms. Please, what would you suggest?—M. Falcone, Colorado.

Answer.—Your 12-frame Jumbo hives should afford abundant space for brood-rearing, also for pollen and stores. A 12-frame Jumbo hive would be equivalent to approximately 16 standard frames, or two 8-frame standard hive bodies. Such hives produce enormous colonies and these large colonies are surely needed to store the maximum crop of honey. If, however, you wish to reduce your 12-frame hives down to 9 frames, you can build a tight-fitting division board in each hive. You might use the remaining space outside the division boards for rearing queens. The entrance to this compartment should be in the opposite direction.

Processing Honey for Market

Question.—Does the heating of honey make it more clear?—Hugh Upton, Michigan.

Answer.—Yes, the heating of honey tends to clarify it. The honey should be brought to a temperature of 160 degrees Fahrenheit and kept at that temperature for about ten or fifteen minutes and then cooled. While the honey is cooling, small bits of foreign matter and also air bubbles will rise to the surface. When heating in small lots, using a wash boiler, the honey, after being brought to the desired temperature can then be strained through two thicknesses of cheesecloth into the honey tank. This gives the honey a chance to cool, and also to clarify. When honey is processed in large lots, it is heated to the desired temperature and then cooled in a winter-jacketed tank. An agitator revolving in the honey prevents the honey on the outside of the can from becoming too hot. This equipment is not so necessary when processing honey in small lots. If you put honey on the market in glass containers, it is an advantage to have it crystal clear, and the honey should be put into glass containers after it has been heated once to the temperature of 160 degrees, then allowed to cool and clarify; then heated again to 140 degrees, and run off into the glass container and sealed while hot. This requires considerable work, but it does make the honey attractive. Honey sold locally in tin containers to consumers need not be heated the second time, because it is consumed very soon after being put into cans.

Tapering Off With Sugar Syrup

Question.—I have four colonies in Buckeye hives, two of these colonies are quite strong with about 50 pounds of stores (mostly goldenrod) in the food chamber. The remaining two have about 35 pounds of stores; these I am now feeding sugar syrup (2 parts sugar, 1 part water). It is customary to augment this goldenrod honey for stores with ten pounds of thick sugar syrup after the last brood has been raised. When would you consider or rather what date would be the proper time to feed this syrup?—John Anderson, New York.

Answer.—It has been customary to make up what is lacking in natural honey stores, with sugar syrup, for winter bee food, if full combs of honey are not available. You mention goldenrod honey. If it is well cured (and it is likely to be, if you have had warm weather) it should be suitable for winter stores. It would do no harm, however, to give each colony a ten-pound pail of thick sugar syrup.

Detecting Granulation in Comb Honey

Question.—Is there any way to detect granulation in section comb honey? I frequently get it that way from the store. Can it be liquefied without melting the comb?—William O. Dean, Michigan.

Answer.—The way to detect granulation in comb honey is to hold the section up to the light. Any portions of the section or cells which appear to be darker than the rest of the comb are likely to be found granulated. It is also easy to detect cells of pollen, which, of course, are quite dark in color and different in appearance from the cells of granulated honey. Some buyers do not object to a few cells of granulated honey in the section, but the majority of buyers like nice, clear honey. Unfortunately, granulated comb honey cannot be liquefied, because the wax is likely to melt if too much heat is applied. The melting point of wax is about 143 degrees Fahrenheit. The best way to handle granulated comb honey is to melt the combs and separate the honey from the wax.

Tartaric Acid for Syrup

Question.—Will you please advise the amount of tartaric acid to be used in making sugar syrup for winter feeding?—R. C. Kash, Lebanon, Tenn.

Answer.—When using tartaric acid in making sugar syrup for winter feeding, we use ¾ of an ounce of tartaric acid to each 25 pounds of sugar. The acid can be mixed with the syrup while hot.

American Honey Institute News Notes

GREETINGS FROM THE AMERICAN HONEY INSTITUTE OFFICE—We wish you a Merry Christmas and a Happy New Year and trust that 1940 has much happiness and prosperity in store for you.

• • •

Included in the publicity given to National Honey Week was an announcement over The Farm and Home Hour:

"Here's a sweet thought for the day; in fact, for the entire week. The 800,000 or more beekeepers in the United States play an important part in the production of foods and it is fitting that a definite time be set aside in appreciation of their contribution to the American table. Make an effort to serve honey this week and every week."

• • •

Listen In!

Listen in to the "Young Dr. Malone" program presented by Post's Bran Flakes on **December 8, at 11:30 A. M.,** Eastern Standard Time, over the NBC Blue Network. This program is presented every day, Monday through Friday. Remember the special date of December 8 and listen in other days also.

"Young Doctor Malone" Program
Sponsored by Post's Bran Flakes

List of Stations	
New York	WJZ
Boston	WBZ
Springfield	WBZA
Providence	WEAN
Bridgeport	WICC
Philadelphia	WFIL
Baltimore	WBAL
Washington	WMAL
Buffalo	WEBR
Pittsburgh	KDKA
Cleveland	WHK
Detroit	WXYZ
Fort Wayne	WOWO
Chicago	WNER-WLS
Cedar Rapids	WMT
Minneapolis	WTCN
Kansas City	WREN
Cincinnati	WSAI
New Orleans	WDSU
Baton Rouge	WJBG
Oklahoma City	KTOK
Fort Worth-Dallas	KGKO
Houston	KXYZ
Denver	KVOD
Ogden	KLO
Salt Lake City	KUTA
San Francisco	KGO
Los Angeles	KECA
Santa Barbara	KTMS
San Diego	KFSD
Portland, Ore.	KEX
Seattle	KJR
Spokane	KGA
Richmond	WRTD
New Britain-Hartford	WNBC
Albany	WABY
Plattsburg, N. Y.	WMFF
Jamestown, N. Y.	WJTN
Erie, Pa.	WLEU
Shenandoah, Ia.	KMA
Sioux City	KSCJ
Flint	WFDF
Lansing	WJIM
Jackson, Mich.	WIBM
Battle Creek	WELL
Bay City	WBCM
Memphis	WMPS
Birmingham	WSGN
Atlanta	WAGA
Hot Springs, Ark.	KTHS
Beaumont	KFDM
Shreveport	KWKH
San Antonio	WOAI
Amarillo	KGNC
Tulsa	KVOO
Miami	WIOD
Tampa	WFLA
St. Petersburg	WSUN
Jacksonville	WJAX
Wichita	KFH
Nashville	WSM
Davenport	WOC
Milwaukee	WTMJ
Indianapolis	WIRE

A representative of the Institute gave a fifteen-minute broadcast on Honey at Vicksburg, Mississippi on October 30 and 31.

• • •

John A. Logan, President of the National Association of Food Chains sent this message to all members.

"TO THE MEMBERS:

HONEY INSTITUTE ESTABLISHES 'WEEK': Word has been received from the American Honey Institute that it has designated October 23 to 30 as 'National Honey Harvest Week'. The Institute states that its plan has been devised to help 800,000 beekeepers and their families. They further report that a number of Governors are aiding by proclaiming this week as 'Honey Week', and that Departments of Markets in various states are offering their cooperation.

Having heard of the cooperation given by the chain food stores on the occasion 'Dairy Month', the Honey Institute desires to have 'National Honey Week'—October 23 to 30—brought to the attention of chain food store companies."

• • •

Will your name be on the Who's Who in the American Beekeeping and Honey Industry? December 31 is the last day.

XUM

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 10th of month preceding.

HONEY FOR SALE

CHOICE Ohio clover honey. Sample 10c. John F. Buchman, Tiffin, O.

NEW CROP clover extracted honey. H. E. Crowther, Cass City, Mich.

FANCY clover honey, case or quantity. J. Stahlman, Grover Hill, Ohio.

CHOICE clover-basswood honey in sixties. Edwin Krinke, Bay City, Wis.

CHOICE clover-basswood honey in new 60's. Noah Bordner, Holgate, Ohio.

LIGHT clover extracted. New 60's. The Jones Apiaries, Sauquoit, N. Y.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

WHITE CLOVER, light amber and comb. Lewis Klaty, Carsonville, Mich.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

FRANK RASMUSSEN, Greenville, Michigan. Fancy comb and extracted honey.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

'39 CROP clover and buckwheat honey. Scribner Hill Apiaries, Ionia, N. Y.

CHOICE clover honey in 60's. R. C. Bish, successor to Moore Apiaries, Tiffin, O.

WISCONSIN No. 1 white and light amber honey. H. Reim, Watertown, Wisconsin.

CLOVER and LIGHT AMBER in 60's, 7c and 6c. E. S. Miller, Valparaiso, Indiana.

CLOVER comb and extracted. Quotations on request. Howard Grimble, Holcomb, N. Y.

MICHIGAN'S finest well-ripened white honey in new 60's. Jay Cowing, Jenison, Mich.

NORTHERN Michigan clover honey in new 60's at 6c per lb. C. J. Freeman, Mesick, Mich.

FOR SALE—Fancy Iowa white clover extracted honey. Kalona Honey Co., Kalona, Iowa.

COMB HONEY, Fancy and No. 1; 12 and 16 oz. inclusive. Louis Regner, Swea City, Iowa.

NEW CROP white extracted in new sixties. Case or carload. Harry C. Kirk, Armstrong, Iowa.

CHOICE clover honey. New 60's, sample, 10c. Martin's Apiaries, Exchange St., Owosso, Mich.

ORANGE, palmetto and mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

MICHIGAN clover honey in new cans and new cases. The Hubbard Apiaries, Onsted, Michigan.

COMB HONEY. Fred Sherman, Edgerton, Wis., will quote you prices on the quantity you want.

FINEST white extracted, 7c; last year's white, 6c. Light amber, 6c. N. B. Querin, Bellevue, O.

EXTRACTED buckwheat honey in 60-lb cans and kegs. Seward Van Auken, Duanesburg, N. Y.

CLOVER, buckwheat and fall honey in 60, 5 and 2½-lb. cans. Earl Rulison, Route 1, Amsterdam, N. Y.

NEW CROP CLOVER extracted. Let me know the quantity you can use. Emery Horton, Holcomb, N. Y.

FINEST New York white clover honey in any container. Angus Carruthers, Syracuse, Rt. 2, New York.

WHITE sweet clover honey 5½c, F. O. B., Webb, Ia., in carload lot. Henry Hansen, Dakota City, Iowa.

BUCKWHEAT honey in 60's, $7.20 a case, 120 lbs. F. O. B. Albany, N. Y., Woodward Apiaries, Clarksville, N. Y.

EXTRACTED 1938 and 1939 clover and buckwheat. Quotations on request. Scott Traxler, Scottsburg, N. Y.

CLOVER and Fall Flowers Honey for sale in 60-pound cans. Sample for the asking. W. S. Earls, New Canton, Ill.

WHITE CLOVER extracted honey in 60-lb. cans. State amount wanted. Leonard S. Griggs, 711 Avon St., Flint, Mich.

HONEY FOR SALE—All kinds, any quantity. H & S Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

FANCY white clover extracted honey, can or carload. Price on request. Sample 15c. Jos. H. Hoehn & Sons, Ottoville, Ohio.

FOR SALE—20 tons white extracted. Will deliver in truckload lots. Robert Case, 156 West Avenue, Canandaigua, N. Y.

CLOVER HONEY—Fancy, choice amber; goldenrod, mixed and buckwheat. Write for prices. Lavern Depew, Auburn, N. Y.

NORTHERN MICHIGAN, light amber honey, in new 60's. 5c per pound. Sample 10c. Lewis A. McIntire, Boyne City, Mich.

WHITE and amber clover, also buckwheat in kegs and cans. Sample 10c, deducted from cost. Coggshall & Son, Groton, N. Y.

COMPLETE line comb and bottled honey, pure clover. Also packed in 5's and 60's. Central Ohio Apiaries, Inc., Millersport, Ohio.

RASPBERRY and clover, blended by the bees in 60-lb. cans for 8c a lb. Sample for 20c. Elmer Hutchinson & Son, Lake City, Mich.

CHOICE Northern New York clover honey in new 60's and 5-lb. tins. Send for sample and price. A. A. French & Son, Theresa, N. Y.

WE BUY AND SELL ALL KINDS COMB and extracted, carloads and less; also beeswax. H. Blitz, P. O. Box 3452, Philadelphia, Pa.

CHOICE white sweet clover, also extra light amber honey in new 60-pound tins by the case or carload. Dadant & Sons, Hamilton, Illinois.

WHITE, light amber and amber honey in new 60-lb. cans. Buckwheat in 60's, and 160-lb. kegs; also comb honey. Harry T. Gable, Romulus, N. Y.

FOR SALE—Extra to water white sweet clover honey in sixties, case or car; also Spanish needle honey. Joe. C. Weaver & Sons, R. 3, Springfield, Mo.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Apiaries, 12213 12th St., Detroit, Michigan.

CLOVER HONEY FROM CLOVERDALE. Ohio's finest clover extracted in 60's. Sample, 10c. Prices upon request. The Cloverdale Apiaries, Cloverdale, Ohio.

NO. 1 to fancy light comb honey, $2.75 per case; No. 2 and amber, $2.25; in window cartons, 25c extra. Extracted, 6c lb. in 60's, H. R. Shelton, Parma, Mich.

GOOD clover extracted in 60's, 6c; light amber, 5½c; dark, 5c; No. 1, weight comb, $3.00 per case; culls, $2.25 per case of 24 sections. H. G. Quirin, Bellevue, Ohio.

HONEY PACKERS—Write us for prices on carload lots of California and western honeys. We stock all varieties. Hamilton & Co., 1360 Produce St., Los Angeles, California.

FOR SALE—Comb honey, buckwheat, mixed and white, $2.50 per case and up, at warehouse, Lakemont, New York. Write for shipping prices. Roscoe F. Wixson, Dundee, New York.

OUR NEW CROP Michigan clover honey is now ready for the market. New cans and cases. Let us contract with you for your season's supply. None better. E. D. Townsend & Sons, Northstar, Michigan.

TEN TONS in new sixties, inspected and sealed by State as "Extra White U. S. Fancy, Color uniform, Pfund 11 mm, 11¾ pounds per gallon, Mild flavor". Clyde Godfrey, Jonesville, Michigan.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

COMB HONEY, No. 1 clover, $3 case; No. 1 amber, $2.50; dark amber, $2; Fancy buckwheat, $2.50; No. 1, $2; 1938 comb at low price; clover extracted, 7c; amber, 6½c; buckwheat, 6½c. C. B. Howard, Geneva, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller.

WANTED—White and light amber extracted honey. George Eykamp, Cuyahoga Falls, Ohio.

WANTED—White honey in new 60's. Mail sample and price. Alexander Company, Rt. 3, Toledo, Ohio.

WANTED—White clover honey. New cans only. Clover Blossom Honey Co., 712 Kossuth St., Columbus, O.

WANTED—White and amber extracted Honey, any quantity, also Beeswax. Write The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

Questions and Answers

Question: What does our beekeeping industry need most today?

Answer: More information on the virtues of honey and the dissemination of this information.

Question: How can this be brought about?

Answer: Largely by The American Honey Institute which is at work for beekeepers continuously.

Help yourself by helping the Institute.

Send contribution to

AMERICAN HONEY INSTITUTE
Madison, Wisc.

Quick Service

Dependable Selected
ITALIAN
QUEENS

Wire Us Your Orders

THE PUETT COMPANY
Hahira, Ga.

Loose-Queen Packages

If you are in the market for package bees in 1940, and want the best for your money, then you owe it to yourself to try our loose-queen packages. We can't satisfy our customers now with anything else. They are so easy to install and the queens ready to begin laying, our customers want nothing but loose queen packages.

3-lb. pkg., $3.15: 25, 5% dis.; 50, 10% dis., 100, 15% dis.
2-lb. pkg., $2.45: 32, 5% dis.; 64, 10% dis.; 129, 15% dis.
Queens, 75c each; 50, 10% dis.; 100, 15% dis.

TAYLOR APIARIES, Luverne, Ala.

MACK'S QUEENS
(They Speak for Themselves)
List your orders for 1940.
We guarantee to please you.
HERMAN McCONNELL
Robinson, Rte. 2. Illinois

ARE YOU SATISFIED with the service and quality of the

Package Bees

you have received in the past? If you are or not, let us furnish you in 1940. We can supply you quality, service, and satisfaction that are as good as can be had. We did not have one express claim in 1939 and only one small one in 1938. Is this worth anything to you?

A card will put you on our mailing list.

Yours for a MERRY CHRISTMAS

ROSSMAN & LONG
P. O. Box 133, Moultrie, Ga.

"She-suits-me" queens. 3-banded Italians, most excellent strain: One queen, 75c; 3 queens, $2.00. Stamps accepted for single queen.

Koolairy veil, $1.50 postpaid, SAFIN queen cage, $1, for ten; 15c for one.

ALLEN LATHAM
Norwichtown, Conn.

A Good Rule to Go By

Buy your Italian bees and queens from

ALABAMA APIARIES
Mt. Pleasant, Alabama

2-lb. package with queen $2.45
3-lb. package with queen 3.15
15% discount to dealers.

We are booking orders for 1940 delivery.

Carniolans Caucasians

We wish you all a very Merry Christmas and a happy and prosperous season for 1940. We want to help make it so with our fine queens and packages. Ask for our free paper about Carniolans and Caucasians. Consider the merits of these races in making your plans for 1940.

ALBERT G. HANN, Glen Gardner, New Jersey

WANTED—Carlots honey, state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—Comb, chunk comb, white and light amber extracted honey. Any amount. Central Ohio Apiaries, Millersport, Ohio.

HIGHEST cash returns made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Ky.

CASH PAID FOR carloads and less than carloads of extracted honey. Send sample and best price. C. W. Aeppler Company, Oconomowoc, Wis.

FOR SALE

QUEEN PAINTING OUTFITS, $2.00 postpaid. Southwick Apiaries, Waban, Massachusetts.

WAX worked into medium foundation, 15c pound; 100 pounds $11.00; thin super, 22c. Fred Peterson, Alden, Iowa.

PERMANENTLY mark your hives. Branding irons. Your initials with periods, solid bronze, only $2.75 postpaid. John Conner, Caldwell, N. J.

WRITE FOR CATALOG. Quality bee supplies at factory store prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Onsted, Michigan.

ATTRACTIVE prices on bee supplies and comb-foundation. Send for catalog. Saves you money. The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

COMB FOUNDATION at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates. Comb and cappings rendered. E. S. Robinson, Mayville, N. Y.

CARTONS for cut Comb Honey. New attractive designs with your name and address. Low prices. Fast service. Samples on request. May Carton Co., Box 257, Traverse City, Michigan.

FOR SALE—Fine quality queen mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Michigan.

HONEY JARS—We would appreciate an opportunity to submit FREE samples on our attractive line of modernistic Jars and Round Cylindrical Honey Jars. We will quote you through our nearest supply jobber. Foster-Forbes Glass Company, Marion, Indiana.

FOR SALE—You will make a big cash saving by letting us work your wax into either plain or wired foundation. Send us a list of your needs for our lowest, early order discount prices. We manufacture a complete line of bee supplies. WALTER T. KELLEY CO., Paducah, Ky.

BEES AND QUEENS FOR SALE

ITALIAN QUEENS. W. G. Lauver, Middletown, Pa.

FOR SALE—Italian queens, 40 cents each. Graydon Bros., Route 2, Greenville, Ala.

CHOICE untested Italian queens, 50 cents. WHITE PINE BEE FARMS, ROCKTON, PA.

CAUCASIAN package bees and queens. Booking orders now for 1940 delivery. Lewis & Tillery Bee Co., R. 4, Box 182, Greenville, Ala.

CAUCASIANS, MILLER BROTHERS. Three Rivers, Texas. Oldest exclusive Caucasian breeders west of the Mississippi. Packages with queens introduced. Write for Circulars.

SILVER RUN QUEENS are sterling. Try them. W. E. Streetman, Midland, Ga.

CAUCASIAN package bees. Booking orders now for 1940 delivery. Bolling Bee Co., Bolling, Ala.

CAUCASIAN Package Bees. Booking orders now for 1940 delivery. P. B. Skinner Bee Co., Greenville, Ala.

PACKAGES FOR 1940. Best Quality. Prompt Service. Write for prices. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

ITALIAN queens. N. J. Experiment Station stock, selected, carefully reared, 75c each. Circular. E. G. Carr, Pennington, N. J.

YOUNG ITALIAN QUEENS for winter and Spanish customers. Queens shipped anywhere any time. D. W. Howell, Shellman, Georgia.

THREE-BANDED Italian bees and queens. Let us book your order for 1940 spring delivery. Alamance Bee Company, Graham, N. C.

BABY CHICKS

MAKE MONEY with poultry. Read America's leading poultry magazine for latest information. Three years $1.00; nine months 25c. Poultry Tribune, Dept. C52, Mount Morris, Illinois.

WANTED

BACK numbers of Gleanings and American Bee Journal. Ralph Stewart, Carrier 13, Muncie, Ind.

MISCELLANEOUS

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly 7c.6d. Apply Editor, Indian Bee Journal, Jeolikote, Dist. Nainital, U. P. India.

"WATCH MICHIGAN!" Read the MICHIGAN BEEKEEPER, published monthly at 406 E. St. Joseph St., Lansing, Mich. 50c a year, 3 years for $1. Sample copy upon request.

THE BEE WORLD—The leading journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership in the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

DAIRY GOATS

DAIRY GOAT JOURNAL, Dept. 919A, Fairbury, Nebr., (monthly magazine, $1.00 yearly), gives complete information. Introductory 6 months, 25c. Literature FREE.

MERRILL BEE COMPANY
Italian Bees and Queens
"Mississippi's Oldest Shippers"
Queen breeders for 29 years
Bucatunna, Miss.

Pettit's Package Bees and Queens

* * * * *

To our many friends and customers, to all other users of package bees and queens, we extend Christmas Greetings and Best Wishes for 1940.

* * * * *

We have moved from Albany to Tifton where we have a roomy shop and office right on Highway 41, at the North end of town.

* * * * *

Beekeepers going to Florida are cordially invited to follow Route 41, and watch for our sign when approaching this prosperous South Georgia town.

* * * * *

The immensely larger number who stay at home and prepare for next season, we invite to send a card for our 1940 literature and prices.

* * * * *

MORLEY PETTIT
Tifton, Georgia

Quality-Bred Italian Bees for 1940

Better prices on several thousand packages of bees with queens if booked now, act quickly. We are now booking orders for spring delivery.

YORK BEE COMPANY
Jesup, Georgia
(The Universal Apiaries)

"Special Offer for Limited Time Only"
1 Pr. B B Pliers and 1 B B Scraper for only $1.50. Very good practical tools; when once used will never be without.
CALIFORNIA BEE & TOOL CO.
810 W. Pedregosa St., Santa Barbara, Calif.

TIMESAVERS!!

NEW USES FOR DARK HONEY

(Continued from page 747)

Three-fourths cup cooked or partly cooked apricots to which a tablespoonful of lemon juice has been added. Use ¾ cup of water to cook ¾ cup of dried fruit if it is used. ¼ cup sweet milk, 2 cups flour, 1 well beaten egg, ¼ cup butter, ½ cup nut meats crushed, ½ cup dark honey, ½ teaspoonful salt.

METHOD: Melt butter and honey together. Add milk and egg. Stir apricots and juice together until almost a mush. Add dry ingredients and beat well. Pour into well greased loaf pan and bake in moderate oven at 350 degrees F., 50 to 55 minutes or until well done. Cool and if used the second day, it will be much better.

These formulas should give one an idea how useful the dark honey is and how easy it is to work out new ways to consume it. I am working on some more recipes using nature's dusky sweet. They are for those old-fashioned steamed breads so popular in grandmother's day. A number of them call for molasses but we shall improve them with honey. Perhaps you will hear from me later. I expect to be in the university this winter but shall continue to use honey in my daily menus.

Canton, Ohio.

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"Australasian Beekeeper"
Subscription 5 shillings per year. Start any time. Inquire for International Money Order for five shillings (Australian) at your Post Office.
Write now to The Editor, P. O. Box 20. West Maitland, New South Wales, Australia.

Damaged Copies

A B C and X Y Z of Bee Culture
$1.00, $1.50 and $2.00.

Starting Right with Bees
25c each.

Wonderful Bargains!

THE A. I. ROOT COMPANY
Medina, Ohio

FOOD DEVELOPMENT OF THE WORKER AND THE QUEEN HONEYBEE

(Continued from page 742)

days old larvae. He fed them with "royal jelly" obtained from queen cells, with "larval food" taken from the worker cells containing larvae under 18 mg., and with larval food ("Mischfutter") from the worker cells with over 53 mg. heavy larvae. He was not successful in rearing worker larvae on the larval food, only 5 out of 24 reaching the weight of normal worker larvae, but even they failed to pupate. He was able to rear two to three-days-old-worker larvae on royal jelly but he obtained only worker pupae (9 out of 28). The time of pupal development was equal to that of the worker.

The fact that he was unable to rear worker larvae on larval food led him to conclude that royal jelly and larval food are not identical in their composition. When Rhein fed queen larvae of various ages with "Mischfutter" he found that from under 20 mg. heavy larvae he received pure workers. In pupae developed from 21 to 46 mg. queen larvae fed with "Mischfutter" there were already changes to the queen type: ovarioles count was over 100, some had developed spermathecas and reduced pharyngeal glands. In pupae obtained from 48 to 146 mg. heavy larvae internal organs were of the queen type and the mandibles were toothed too.

His failure to rear queens from smaller queen larvae Rhein explained by an assumption that a special determining factor (Determinations secret) was missing in the royal jelly which he fed to those larvae. Only those pupae which showed greater number of ovarioles and developed spermathecas seemed to have received some of this secretion. He thought that either the substance is highly perishable or that it is fed to the queen larvae directly. However, he has not observed a single case of a direct feeding.

Rhein supplied over-3-days-old worker larvae (41 to 152 mg.) with an abundance of "Mischfutter" and obtained large adults which showed both internal and external characteristics typical to workers. A 33 mg. queen larva and 45 mg. worker larva fed with "Mischfutter" developed in pupae with the external characteristics of a worker. However, the pupa reared from the worker larva had 6 to 14 ovarioles while that reared

(Continued on next page)

(Continued from previous page)

from the queen larva had 124 to 150 for left and right ovary respectively.

He came to the conclusion that queen larvae receive a different kind of food at the beginning of the differentiation than later in the development. This differentiation begins according to Rhein, in queen larvae as soon as they pass the weight of 20 mg. So it occurs sooner than the differentiation in worker larvae which happens when the larvae attain the weight of about 35 mg. The differentiation is almost complete when the queen larva attains the weight of 150 mg.—about two-thirds of its final weight.

The writer tried to obtain adults from a growing queen larvae of about the same weight as that of a fully developed worker larva. He thought that in this case, due to inanition, a worker bee or a creature closely resembling it would be obtained.

A number of weighed queen larvae were placed without food in a constant temperature chamber with the temperature adjusted to 33° C and relative humidity 75%. Velich's (1930) technic was applied. The larvae were watched individually. The shape of the head, the mandibles, the sting and the presence of pollen baskets was noted in adults or in pupae when the insects died in the late pupal stage. Only one live adult was obtained and it resembled a worker, having typical worker's head, mandibles and a straight sting. The head and mandibles were smaller than those of a normal worker. Seven pupae in the late stage of development showed head, mandibles and sting of the worker shape. The pollen baskets in all cases were either absent or poorly developed. The average weight of larvae from which the worker-like insects were produced was 204 milligrams. The average weight of larvae which developed into queens was 232 milligrams.

(To be continued)

TOO LATE TO CLASSIFY

100 to 400 colonies bees, with equipment, plenty honey. Guaranteed no disease. Clyde Cobb, Belleville, Ark.

WANTED: To buy, rent, or lease—Small clean apiary, house and garden plot in orange groves of Central Florida. Alvin E. Roop, Jr., Rhodes, Michigan.

Queens and Package Bees

CAUCASIANS • ITALIANS

Over 25 Years' Experience

RIO GRAND VALLEY HEADQUARTERS for TRUCKERS

On Weslaco Progresso Highway

Paying 30 cents a pound for Beeswax in exchange for Bees and Queens. Queens, 75 cents each. 2-lb. pkg. bees with queen, $2.45 each; 3-lb. pkg. with queen, $3.15 each. One of our customers took 1620 queens on one truck at one time last spring to North Dakota. We do lots of trading. What have you? WANTED HONEY. Send sample.

Blue Bonnet Apiaries

R. 1. Box 70, Mercedes, Tex.

What Type of Package is Best?

We Do Not Know

What race of bees is best? We do not know.

Therefore

We ship what YOU WANT when you want it.

Weaver Apiaries, Navasota, Texas

QUEENS

while they last 40c each. Booking orders for package bees and queens for 1940.

Safe arrival and satisfaction guaranteed.

W. O. GIBBS Brookfield, Ga.

Package Bees

and Queens for 1940.

Three-Banded Leather-Colored Italians.

THE CROWVILLE APIARIES

Rt 1, Box 85, Winnsboro, La.

Dear Friends:
We wish to thank each of you for the nice volume of business given us. We have had a most satisfactory year. Wishing you a Merry Christmas and a New Year of Happiness, Prosperity, and Contentment.

N. B. SMITH & COMPANY
Calhoun, Alabama

BETTER BRED QUEENS Three-banded Italians

We appreciate your business in the past and solicit your future business on the merits of our service and quality. Let us quote you 1940 prices.

CALVERT APIARIES, CALVERT, ALABAMA

XUM

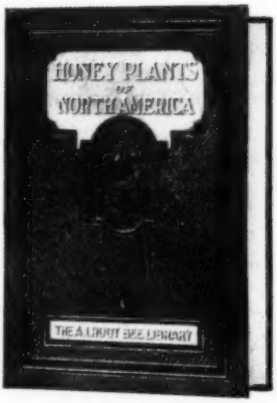
Garon's Three-Banded Italians

My bees have made records this year.
For Quality Bees and Reliable Service in 1940
GARON BEE COMPANY, DONALDSONVILLE, LOUISIANA

A Merry Christmas to You

1940 will soon be here. Let us quote you on package bees, queens and cypress bee supplies.

The Stover Apiaries, Mayhew, Miss.



WONDERFUL
CHRISTMAS GIFT

Honey Plants of North America

(Bound in imitation leather)
Regular price $2.50

SPECIAL OFFER
with 2 year's subscription
to Gleanings in Bee Culture
Both for $2.50

THE A. I. ROOT COMPANY
Medina, Ohio

HONEY PAIL... 5 lb., with bail attached. For crystal clear strained honey, or to display honey in chunks.

HONEY JARS

MASTERLINE... Sparkling modern design affording clear view of contents. Half-pound to two-pound sizes.

BEEHIVE... Especially attractive for table use. Half-pound to two-pound sizes.

HAZEL-ATLAS GLASS CO. WHEELING, W. VA.

XUM

Index to Gleanings in Bee Culture

Volume LXVII, 1939

In using this index the reader should not fail to note that it is divided into five departments, namely: General, Editorials, Contributors, Illustrations and Departments. The index of General includes everything except Editorials, Illustrations, Departments and Contributors.

GENERAL

A

AFB, destroy when found .576
resistancy 420
spores difficult to destroy 440
Affiliation with state association, resolution favoring 425
Alfalfa honey for winter stores 583
not yielding 647
Alsike seed production, importance of bees in ..356
American Honey Institute marches on 46
Amino acids in honey 19
Anemia, honey cure for ...575
Apiary aids 26, 90, 154
neat back-lot 704
Apple and honey muffins .. 14
dumplings, honey 15
honey custard 14
oatmeal pudding 15
pancakes 14
snow 13
up-side-down cake 14
Apples are full of surprises 13
chocolate coated 739
with honey and raisins .. 14
Apricot honey custard 548
honey ice cream 354
honey loaf 747
pie 83
ring mold 83
shortcake 84
Asthma, honey for 646
Athol tree 299
Australian beekeeping 752
Auxiliary, value of 855

B

Bacillus alvei 243
Back-lotter's idea 703
Bait, drone brood for ..703
Baking, honey in, works well 627
Banana nut bread 143
Bananas, jelly glazed 657
and rhubarb, baked 355
Banker boosts honey 682
Barclay, Richard D. 27
Bars, honey 739
Bavarian cream, two-toned coffee 422
Bear fences 208
Bears kept away by electrified fence 619
Bee-eating bird 684
Bee, can it bend over backward? 753
hives, ancient and modern 22
in a cigar box 576
moans 640
shade ideal 623
tree, cutting the 88
Beekeeper told it, a ..313, 563
Beekeepers and orchardists cooperate 682
commercial, should they organize? 18
must save themselves ... 18
prominent, of Chili 103
school 808
Beekeeping course at Clemson, S. C. 611
healthful occupation ...226
in Australia 752
in Ireland 485
in Jamaica 558
is it a hobby? 9
needs bookkeeping 214
rejuvenating Connecticut 508
romance in 424
venture, my first 137
Bees and snow 40
as world tourists 430
breeding non-swarming ..351
build comb in wrong place 138
can they see in dark? ..582
do not approve of bridge 17
do they fly in straight line? 110
do they prefer green? ...312
driven away by frogs ...241
flying in straight line .. 15
get ornery 139
getting out of tree 363
hermaphrodite 647
hiving the 137
important in production of alsike seed 356
killing in fall, and packages in spring 715
know owner 139
landing place of 381
not affected by hot sun .687
not storing surplus 647
old, getting rid of before winter 647
on red clover, behavior of 488
poisoned again 314
putting in cellar 671
transferring, in Georgia 424
united by bee-escape method 242
wintering 607
wintering in a building 714
wintering in Idaho 743
work on ragweed and timothy 704
"Bees in the Garden, and Honey in the Larder", new book 92
Beeswax 208
melted, effect of on heated honey 221
Beginners' big blunders ..559
Bird, bee-eating 684
Blazing the Trail 563
Bloom, competition of for insect visits 285
Blunders by beginners ...559
Bohne, Geo. W., message from 96
Bonnier's experiments ...243
Bottom side entrances 109
Box hive philosophy of wintering 674
Box hives, buying 16
Brazilian chocolate 422
Bread, banana-nut 143
Fig "N" honey 747
honey dark, nut 747
honey orange 145
honey prune 144
pudding, honey 618
raisin bran 145
varieties 143
Breeding non-swarming bees 351
Breeding stock, selection of 477
Bridge, bees do not approve of 17
Brood chamber, honey and pollen carried over in 582
shall we raise in mid-winter? 151, 556
Brood-rearing and late pollen 43
desirable, mid-winter ..605
early, pollen plant for ..153
mid-winter 366
Brownies, honey 291
Brown sugar unsuitable for bees 243
Bruin caught in act 767
Buckwheat honey, effect of heating 614
Bumblebees, more about .. 23
Buns, honey 549
Butter, honey plum 491
B-Z-Z-Z-Z, first appearance of 92

C

Cake, apple, up-side-down . 14
delicate white 220
honey chocolate 91
honey fudge 220
honey pound 219
honey spice 219
whipped cream 219
Cakes, honey in 218
California crop conditions 653
California's northern Sierra 584
Cambridge, University of, bees studied at 10
Cans, making easier to lift 312
Carbolic acid, suggestion on using 556
to drive out bees, no good 622
Caucasian queen introduced to Italian colony 714
Cell builders 80
Cellar, construction of ...669
proper temperature in ..670
ventilation 670
wintering 669
Cells, early, queens from best 575
Central extracting plant ..479
Charleston meeting 50
Checking through colonies .449
Chemical and physical properties of honey 19, 85, 149
Cherry cup puddings 354
honey pie 353
pineapple cobbler 354
tapioca 354
Chicken, glazed roast 618
Chilian beekeepers 103
Chlorosol 432
Chocolate frosted drops ...290
coated apples 739
honey frosting 291
icing 91
taffy, honey 789
Christmas filled cookies ..747

Citrus fruits sales campaign 142
Clarifying honey 545
honey, Gardner's method 418
Cleansing flights of bees ..216
Clemson bee short course .611
Cleome 41
Cobbler, cherry pineapple .354
Coffee cake, honey 144
Colloids in honey 19
Colonies, checking through 449
distribution of in ..... orchards 285
examined first warm day 296
produced 200 lbs. surplus 703
too strong in spring 230
two, uniting 582
uniting 448
Colony average yield ..for U. S. 42
breaking up a 514
how to tell when queenless 378, 514
manipulation 287
outdoor 228
Comb, bees build in wrong place 138
hanging in nature 514
honey 552
honey again 678
honey a work of art 210
honey can not be manufactured 43
honey, detecting granulation in 770
honey, equipment used in producing 211
honey, marketing 360
honey, production of 210, 286, 359
honey production, queen rearing in 288
honey production, swarm control in 288
honey, queen excluders .. for 449
honey, queen excluders not needed for 379
honey, 6000 lbs. pro.... duced by pastor 23
honey, sunshine and .... shade 677
honey, top supering for .242
space, ample, an essential 350
Combs, cutting out of box hives 17
good, life of 379
mold during winter 714
old, rendering small lots 312
Comments 686
on May issue 364
on June Gls. 432
on July Gls. 493
Confab, a, ...48, 108, 166, 244
Connecticut beekeepers' ... school 308
beekeeping, rejuvenating 508
Cookies for the holidays ...231
date drop 747
filled Christmas 747
ginger tea 746
honey, Fowls' 290
honey cream-cheese 548
honey pumpkin filling .. for 290
icebox, honey oatmeal ..422
pineapple filling for 290
potato spice 548
Cooky jar, to fill 289
Cooperative action needed in honey industry 142
campaigns promote consumption 142
Cornflake honey macaroons.291
Correction in Who's Who..507
Cost sheet is perpetual inventory 215
Covers numbered instead of hives 362
Crab-apple jelly 490
jelly, spiced 490
Cream-cheese honey cookies.548
Crocuses, yellow Dutch....153
Crop, 1938, below expectation 140
Crystallization, how does it start? 86
Custard, apple 14
apricot honey 548
Cyprian characteristics 363

D

Dairy products sales campaign 141
Dark, can bees see in? ...582
honey requires selling... 76
Date drop cookies 747
marble pudding 84
Delicate white cake.....220
Dentist, colored, a bee fan..576
Depreciation charges 214
Diabetics, honey for 43
Disinfecting an extractor...583
hive parts 582
Do you? I don't 226, 296, 361 ...428, 494, 622, 687, 751
Drawn combs, what is meant by 378
Dried fruit specialties..... 82
Driving method of transferring 16
Drone brood for bait.....703
laying queens 715
are they always fed? 43
dead at entrance.....378
do they mean hard times?.427
propagate desirable 351
straining 288
Drops, frosted chocolate...290
Dumplings, honey apple.... 15
Dunn, J. F., death of.....105
Dysentery, effect of.....605

E

Economic studies 208
Electrified fence 619
Embargo on moving bees into Texas 691
England, scale lives in.....365
Entrances choked by grass.622
dead drones at.....378
for winter 108
side 483
storm and freeze proof.. 88
bottom side 109
Equipment used in producing comb honey 211
Excluder, lack of honey below 714
Extracting at central plant.479
plant, central 479
Extractor, disinfecting an..583
paint for inside of.....583

F

Feeding bees, sprinkling .. method of 152
honeydew honey 314
new angle on 560
packages, judicious, necessary 74
Fence, electrified 619
Fig conserves 83
Fisherman, attention ..575, 703
Flemington Fair honey exhibit 712
Flights, cleansing 216
Flow, good fall 767
Fluff, honey orange 422
Food and development of.. worker and queen ...740
Food chambers, getting filled 646
handling of 378
manipulation of during honey flow 448
queen excluder underneath 561
4-H bee clubs in Pennsylvania 541
bee club work 77
4-H's of honey 562
Fowl's Chalon, honey .... cookies 290
Frogs drive away bees....241
Frosted chocolate drops....290
Frosting, 7-minute honey...220
Fruit and honey, a bit of..353
balls, honey 549
bars, honey 548
cake, honey 681, 746
cake masterpieces 679
cake, ribbon 722
cake, two-toned 679
cake, uncooked 738
dried, specialties 82
pudding, honey 738
pudding, icebox 738
quantity and quality correlated with seed development 282
Fruited gingerbread 84

G

Gale, L. D. 574
Galvanized tank, honey stored in 378
Gardner's method of clarifying honey 418
Gingerbread, fruited 84
Glock, quotation from.....640
Goats do not destroy hives.312
Golden Jubilee convention..447
Golden ragwort 685
Granulation, factors influencing speed of.....149
honey, control of 150
of honey 85
to prevent 110
Grape conserve 491
honey jelly 490
honey sherbet 618
Grass, killing around hives.241
Green, do bees prefer?.....312
honey 415
honey cheaper to produce.415
Grocer, get the cooperation of 492

H

Hands and hive tool, cleansing 582
Hand truck saves heavy lifting 416
Hard sauce, honey.....354
Health and honey.....639
Heat and color of hive paint 678
Heather honey 527
Heating buckwheat honey, effect of 614
honey, effect of 146
Heresies, early 672
Hermaphrodite bees 647
Hive carrier 507
Hive, moisture in 612
paint, color and heat ...678
painted white repels heat.622
parts, disinfecting 582
records to keep 27
seat and tool kit 297
stands of concrete 227
tool and hands, cleansing.582
tool holster 241
tool, revamping the 495
Hives, locating 362
not shaded 428
painting, before assembling 226
small, crops small 485
snow melts on 40
Hiving the bees 137

XUM

Hobby, is beekeeping a.... 9
Holiday cookies 231
treats 737
Holster for hive tool.....241
Honey, a banker boosts....682
alfalfa, for winter stores.583
amino acids in 19
and fruit 353
and health 639
"Honey and Health" a gem 312
and price of 379
and pollen carried over in brood chambers 582
and sugar, sweetness of..379
apple custard 14
apricot custard 548
apricot ice cream 354
apricot loaf 747
bars 739
better prices for 482
bread and butter at county fair 41
bread pudding 618
brownies 291
buckwheat, effect of heating 614
buns 549
business in class by itself 76
butter crust rolls.....144
buying to supply customers 641
cabinet, compact 748
chemical and physical properties of 19
cherry pie 353
chocolate cake 91
chocolate frosting 291
chocolate ice cream.....423
chocolate sauce 423
chocolate taffy 739
clarifying 545
clarifying, Gardner's method 418
coffee cake 144
colloids 19
cookies, Chalon Fowls'..290
cornflake macaroons 291
correct temperature for storing 379
cream-cheese cookies 548
creams 290
crop, disposing of 140
crop, record 427
cure for anemia 575
dark, new uses for 746
dark, requires selling..... 76
display makes sales.....688
every-day gifts of 749
exhibit at New Jersey fair 712
fermented, what to do with 378
500 lbs. from six colonies 297
for asthma 646
for diabetics 43
for keeping bait fresh...575
for sale cheap.....495
4-H's of 562
fruit balls 549
fruit bars 548
fruit cake 681, 722, 746
fruit pudding 738
fudge cake 220
Gardner's method of clarifying 418
granulates in temperature 110 to 115 677
granulation, control of...150
granulation, factors influencing speed of 149
granulation of 85
grape jelly 490
grape sherbet 618
green 415
green, cheaper to produce 415
hard sauce 354
heated, effect of melted beeswax on 221
heather 527
heating, effect of.....146
hygroscopicity of 85
ice cream 423
in baking, works well...627
in cakes 218
in surgery 298
industry needs cooperative action 142
in the summer menu....421
is not "just honey"..... 89
jelly marguerites 618
kolaches 144
lack of below excluders..714
marketing observation ..241
marshmallow 290
minerals in 20
mocha icing 219
moisture content of 294
November important month 685
nuggets 291
oatmeal icebox cookies..422
orange bread 145
orange drops 291
orange fluff 422
orange icing 219
peach pudding 84
peppermint candy ice cream 423
pineapple muffins 549
plum butter 491
plum jelly 490
plum pudding 737
potato spice cookies 548
pound cake 219
prices, why at their present level? 733
processing or market ..770
production, careless, a premium on 683
prune bread 144
pumpkin filling 290
prune pudding 82
raisin brittle 549
raisin drops 548
refrigerator rolls 549
removed by smoke method 610
rhubarb crisp 355
selling locally 243
skimming, a little trick in 767
spice cake 219
spreadings 489
stand of G. F. Kneeland 446
stored in galvanized tank 378
surplus, removing in large apiary 514
table showing moisture content 295
taking off at central plant 479
tea 40
thin, what to do with...583
thixotropy of 21
too much in spring.....315
too white for trade.....715
200 lbs. surplus 703
valentine, a 89
viscosity of 21
wafers, dark 746
weather too wet for bees to ripen 646
what gives it different colors? 42
when to take off 449
winter crinkles 746
Honeydew honey, feeding..314
Honor, an 145
Hurricane hard on bees.... 41
Hybrids 26
dead in sealed cells.....576
Hygroscopicity of honey... 85

I

Iceberg chocolate 423
Icebox cookies, honey oatmeal 422
fruit pudding 738
Ice cream, apricot honey...354
honey 423
honey chocolate 423
honey peppermint candy.423
Icing, chocolate 91
honey mocha 219
honey orange 219
Idaho, wintering bees in ..743
Illinois tours ,highlights of.513
Importing queens from Europe 43
Indiana skyscrapers 25
Indian meal moth 426
Insect pollination of red clover in Ohio 486
Insecticides kill queens in cages 227
Insect pollination of orchard fruits 281
Inspection in Michigan....706
Installing packages, method of 73
International honey display at New Orleans, 1938.. 81
Introducing cage, homemade 431
Caucasian queen to Italian colony 714
cells to nuclei 449
Inventory, take in beekeeping 214
Ireland, beekeeping in.....485
Italian colony, Caucasian queen introduced to..714
Itching sensation after being stung 583

J

Jamaica, beekeeping in....558
Jelly, crab apple 490
frosting 618
glazed bananas 657
grape honey 490
honey plum 490
marguerites, honey 618
peach 489
spiced crab-apple 490
spiced plum 491
tricks with 617
Journal sheet in beekeeping 215
Jumbo hives, reducing size of 770

K

Kansas bees work early and late 41
Kneeland, G. F., honey stand of 446
Kolaches, honey 144
Kudzu vine as bee shade..623

L

Landing place of bees.....381
Laying workers, how to dispose of 314
Lemon filling 220
Lewis, George C. 105
Lewis, George C., death of.. 28
Lightning plays peculiar prank 576
Lost art or illusion?.....365
Lovell, John H., passing of 745
Lunch-box for school 547

M

Macaroons, honey cornflake.291
Marguerites, honey jelly..618
Marketing and organization 413
agreement constitutional.445
agreement letter 53
agreement terminated...627
comb honey 360
orderly 59

Marking queens 647
Marmalade, peach 491
rhubarb 491
Marshmallow, honey 290
Match box, an emergency..230
Mating hives used in 4-H club work 79
Merchant of Sweetness.... 41
Metal tags for records 744
Methyle bromide for destroying moths ..432, 626
Michigan beekeepers' entertainers 609
Michigan inspection 706
Mid-winter brood rearing..366
brood rearing desirable ..605
Minerals in honey 20
Modified two-queen system. 11
Moisture content, how to measure 294
content of honey 294
do bee trees absorb?....108
elimination important .. 48
foe to good wintering...673
in the bee hive 612
trees absorb from bees.. 49
Moses, the greatest need..142
Moth, Indian meal 426
wax, get them 431
methyle bromide for destroying 626
Moving bees from one state to another 583
long distances 42
short distances 242
without screening 313
Muffins, apple 14
honey pineapple 549

N

National Convention program 511
Nature, comb hanging in...514
Nectar concentrations 206
Newspapers playing up fatal effects of bee stings...243
New England hurricane hard on bees 41
wintering bees in 749
New Orleans meeting 44
New York extension work in 97
New Zealand Beekeeper, a new magazine 457
November important honey month 685
Nuclei, introducing cells to.449
Nuggets, honey 291

O

Oatmeal apple pudding.... 15
icebox cookies 422
pineapple drops 290
Ohio crop survey for 1938. 28
district field meetings...589
winter losses 626
Okefenokee swamp 675
Onions, glazed 657
Orange crate windbreak...640
drops, honey 291
fluff, honey 422
icing, honey 219
Orchardists and beekeepers cooperate 682
Oregon honey plants 208
Organization and marketing 413
Orthodoxy of wintering....674
Out-apiaries, distance between 314
Outdoor colony 228
Over-wintered colonies vs. package bees 284

P

Pacific States Bee Culture Field Laboratory 205
Package bee and queen breeders, letter to..53, 626
colonies vs. over-wintered 284
cost of producing 75
Package bees in spring ..715
4-H club receiving 542
in spring 715
too late for 514
Packages pay prompt profits 73
screening queen and drones from 42
Packing bees, paper for.... 40
large amount needed....244
Paint for inside of extractor 583
Painting hives before assembling 226
Pancakes, apple 14
Paper for packing bees.... 40
Pastel jelly frosting.....618
Pastor produces 6000 lbs. comb honey 23
Peach jelly 489
marmalade deluxe 491
pudding, honey 84
Peanut publicity program..141
Pennsylvania, 4-H bee clubs in 541
Personnel at Pacific States Laboratory 205
Physical and chemical properties of honey ..19, 85, 149
Pie, apricot 83
cherry honey 353
deep-dish rhubarb 355
three-bite 657
Pineapple filling 290
honey muffins 549
oatmeal drops 290
Plum butter, honey 491
honey jelly 490
jam, spiced 491
pudding, honey 737
Poisoned bees 314
Poison, is it stored in combs? 448
plants 207
Pollen, ample, importance of 151
carried over in brood chamber 582
late, and brood rearing .. 43
necessary abundance of .743
plant for early brood rearing 153
reserves 209
storage 448
what is it? 378
Pollinating activity, rate of 487
insects 282
insects, survey of 356
Pollination, does lack of explain low seed yield? 356
of orchard fruits 281
of red clover in Ohio....486
studies 206
Pollinizing varieties of fruit 285
Potato spice, honey cookies.548
Premium on careless production 683
Prices, better, for honey...482
why they decline 18
Program of Sacramento meeting 710
of Vicksburg meeting...643
Propolis, what is meant by.378
Prune bread, honey.....144
nut surprise 83
pudding 82
Pudding, apple oatmeal.... 15
cherry cup 354
date marble 84
honey bread 618
honey fruit 738
honey peach 84
honey plum 737
honey prune 82
icebox fruit 738
Pumpkin honey filling for cookies 290
Pussywillows 227

Q

Queen and drones, screening from packages.....42
best way to clip wings of.557
cells, bar of 641
cells counting 362
cells present after queen is introduced 449
excluder underneath food chamber 561
food and development of 740
for comb honey.....449
not needed for comb honey 379
injured by tobacco smoke 41
introduction? % is successful 641
is she a queen before she is mated? 623
mated, stung by 704
of all conserve 491
one way to capture 313
Queenless, how to tell when colony is 378, 514
swarm breaks rule 767
Queen rearing and swarm control 288
emphasis on 77
Queens, drone-laying 715
from early cells best....575
handy way to rear.....496
holding in mailing cages.110
imported from Europe .. 43
killed in cages by insecticide 227
marking 647
OK without wings 381
reared by grafting, are they better 687
rearing one's own.....715
wings clipped 296
Quotation from Glock 640

R

Ragweed, bees work on....704
Ragwort, golden 685
Raisin bran bread.....145
brittle, honey 549
drops, honey 548
Rea, Geo. H., work of..... 97
Rearing one's own queens..715
Red clover, insect pollination of in Ohio 486
Refrigerator rolls, honey...549
Research report for 1939 .690
Resolution favoring affiliation with state association 425
Rheumatism, collecting stings for 379
Rhubarb and bananas, baked 355
honey crisp 355
marmalade 491
pie, deep-dish 355
Robber bees, how to fool...428
Robinson letter to package bees and queen breeders 53
Rolls, honey butter crust..144
honey refrigerator 549
Romance in beekeeping ...424
Round-up, final 544
Royal jelly 242
price of 714
Rubber sponge pad for seat.381
too soft 507

XUM

S

Sacramento bound 815
Sacramento meeting 642
program 710
Sacramento's leading hotels 713
Sales, local, could have been developed 140
Sauce, honey chocolate....423
Scale lives in England.....365
School lunch-box 547
Scissors, carrying case for.298
Screening queen and drones from packages 42
Seat, rubber sponge pad for.381
Second glances .....561, 625, ...689, 753
Section moistener 446
Sections, preparing for comb honey production 286
scraping and grading...360
Seed yields, survey of.....356
Self-help stores 241
Seven-minute honey frosting 220
Shade and sunshine.....555
and swarming 678
bees not located in 297
for bees, kudzu vine as..623
theory of James Heddon.677
why bees in may be vicious 677
Sherbet, honey grape 618
Shortcake, apricot 84
Shot-gun selling 495
Side entrance 483
Skunks, getting rid of.315, 428
discouraging 751
two methods to stop....676
Skyscraper hive ...25, 293,383
why the 110
427, 484
Smoke method, honey removed by 610
fuel, making 449
Snapshot sales suggestion..313
Snow melts on hives 40
Southern Beekeeping States Federation meeting ... 50
program 643
Spiced plum jam 491
Sprinkling method of feeding bees 152
Sting, loss of 153
Stings, collecting for rheumatism 379
fatal effects of newspapers playing up 243
Straining honey necessary..546
Sugar, amount of in pail of syrup 242
and honey, sweetness of.379
brown, unsuitable for bees 243
syrup, tapering off with 770
syrup vs. fall honey for winter 751
Sunshine and shade 555
Supering in comb honey production 359
Supers, have enough to hold crops 415
filled, when to take off..714
how to add 582
preparing for comb honey production 286
removing finished 359
Supersedure, proposed forced 292
Surgery, honey in 298
Surplus, bees not storing..647
Survey on winter losses in Ohio for 1937-'38....626
Swarm control 349
and queen rearing.....288
Swarming 352
and shade 678
is natural 349
killing cells to prevent..296
Swarms, watching for.....361
shooting down 24
Sweetness of honey and sugar 379
Syrup, how to prevent from crystallizing 582
pail of amount of sugar in 242
tartaric acid for 770

T

Tapioca, cherry 354
Tartaric acid for syrup ...770
Temperature, correct for storing comb honey...379
low, affects flight.....217
proper, in cellar.....671
Ten-frame equipment, prefers 446
Test cages in pollination experiments 486
Texas, embargo on moving bees into 691
Thixotropy of honey 21
Thought raiser in December Gleanings 15
Three-bite pies 657
Tide is turning 313
Timothy, bees work on....704
Tobacco smoke injures queen 41
Top entrance 550
colonies die during winter 49
only, likes 108
Chas. Mraz is for..... 48
early history of.....166
not a menace to good wintering 673
Top supering for comb honey 242
Top ventilation needed for cold winters 109
Toronto bee meeting..... 53
Tourists, bees as 430
Transferring bees by driving method 16
in Georgia 424
method 229
too late for 646
Traps, do not use on hives.361
Tricks with jelly.....617
Tropical delight 88
Truck, hand, saves heavy lifting 416
Two-queen colonies reduced to one-queen system ...11
system 153
system, advantages of... 12
system, arranging colonies for 11
system, modified 11
Two-toned Bavarian cream.422
honey fruit cake 681

U

Uncooked fruit cake 738
Uniting bees by means of bee escape 242
colonies 448
two colonies 582

V

Valentine, a honey..... 89
Ventilation in cellar, proper 670
essential 350
top, needed for cold winters 109
Vicksburg meeting, program of 643
meeting 768
Viscosity of honey..... 21
Village bee ordinance.....313

W

Wax cake, handle for.....361
moth, get them 431
West invites you.....384
Whipped cream cake.....219
White painted hive repels heat 622
Who's who in apiculture...310
Who's who in apiculture, a correction 507
Windbreak, artificial 554
from orange crate.....640
Wings of queen, best way to clip 55
Winter, combs mold during.714
entrance 108
entrance, where are we on 244
losses in Ohio 626
packing studies 690
packing excessive 672
stores, alfalfa honey for.583
Wintering 672
bees 607
bees in a building.....714
bees in Idaho 743
bees in New England ..749
box hive philosophy of 674
cellar 669
orthodoxy of 674
Writing on the wall..... 18
Worker bee locked up 641
food and development of 740

Y

Yield, colony average for U. S. .....
Yuletide roll 789

ILLUSTRATIONS

Alsike clover field....356, 358
Anderson, C. 513
Anderson, Edwin J. 541
Aplary .....September cover
abandoned 707
at monastery..October cover
box-hive 17
at Kapuskasing, Ontario.350
in Idaho 743, 844
in Sweden 218
in tropics .....March cover
in windbreak.November cover
in winter in Ontario.....607
of N. G. Boulos 704
of Robert Kroschel 703
of L. K. Lawrence.....478
of L. J. Link 25
of Schultz Honey Farms 73, 74
of University of Cambridge 10
result of bear raid 619
to be cleaned up.....707
Apple custard 15
snow 14
Apples, Delicious, showing effects of pollination..282
with honey and raisins.. 13
Asa, Mr. and Mrs. A. L. ...513
Atchison, Thomas 288
Athol tree 299
Baker, Ernest, and hive... 78
Banquet at New Orleans, Dec., 1938 .....96, 97
Baptist minister and his bees 23
Barclay, Richard J. 27
Barnes, E. C., and skyscraper hives 482
Barrett, Don P. 764

Bass, Chester A. 611
Bavarian cream 422
Bear caught in Okefenokee swamp 767
Bears, result of visit from 309, 619
Beaver, H. W., honey house of 479, 481
Beekeepers, prominent, of Chile 103
Bee on apple blossom April cover
Bees and goats 622
clustered around bee escape on house....517
Beeswax, a study in....209
Bisson, C. S. 207
Bottom board, deep....212
Boulos, N. G., and apiary..704
Box-hive apiary 17
Brazilian chocolate 421
Bread, honey nut 143
Bretherick, Ormond 207
Brood combs 213
Brood for increase 360
Brownies, honey 291
Buchman, John, honey-fed daughter of 736
Bumble-bee colony 486
domicile 486
Burr combs 138
Bush, Roy, and nuclei.... 79
Cabinet for honey, compact 748
Cactus blossoms ....May cover
Cale, C. H. 513
Cambridge, University of, apiary of 19
Candies, honey 739
Car for advertising honey..580
Carr, E. G., honey exhibit of 712
Cascade Lake, Calif. 584
Cellar for wintering...670, 671
hives in 669
Cells grafted on bar 287
Cherry cobbler 354
pie 353
Chicken laid egg in bee hat.509
Children going to school...547
Chilean beekeepers 103
Christmas packages 680
Cleats to help bees turn corners 753
Clover, bees on....June cover
Coffee cake 144
Colonies, preparing for winter 553
strong in bees 709
Colony in double brood-chamber hive produced good crop 293
strong 317
Comb foundation 107
Comb with sealed and unsealed cells 247
Concrete hive stand....226
Connecticut bee meeting...508
Cookies, Chalon Fowls'....290
honey 549
oatmeal 289
refrigerator 422
Cowing, Jay 706
Dadant, James 513
Dawn ....July Cover
DeKorne, James L. 706
Dentist, colored, as apiarist.576
Deyell, M. J., at his desk.. 51
Dinwoodie, H., apiary of...365
Dominion Experiment Station at Kapuskasing...350
Duck, pet in bee yard....640
Electrified fence to keep out bears 209, 620, 621
English apiary of H. Dinwoodie 365
Entrance cover-board 88
deep, in one-story hive..212
Erlandsaan, Olaf, apiary of.213
Exhibit of E. G. Carr....712
of W. G. Hayes....712
of Leslie Thran 712
Extracting "bee" 543
comb 517
outfit 452
Farrar, C. L. 513
Feeding bees by sprinkling.152
Forest Co. (Pa.) 4-H Bee Club 543
Foundation fastening board.287
Four-H club apiary in Indiana 78
honey exhibit 543
Frames separated easily...451
Fruit cake, decorated..679, 680
pudding, icebox 738
Fruits, dried, and honey... 82
Gale, L. D. 574
Gardner, Lloyd C. 214
Gardner, W. H. 621
Gill, Mr. and Mrs. A. G. ..513
Goats and bees 622
Grace, Mrs. Hariret F. 91
Grape fluff, honey....618
jelly 490
Grocery store displays honey 688, 689
Gundry, Neal, and hive....444
Handle to make lifting cans easier 312
Hayes, Wm. G., honey exhibit of 712
Heat from hive melts snow. 40
Hendrickson, Mr. and Mrs. Edney 513
Hive carrier 507
double-story, with upper entrance 317
method of wrapping in paper 708
opening 246
record tags 27
seat and tool kit....297
stand of concrete....226
tool holster 241
tool revamped 495
Hives in cellar 669
on scales in English yard.365
Hollyhocks ....August cover
Hollywood, North, honey stand in 90
Holster for hive tool....241
Home-made hives in Jamaica 558
Honey candies 739
Honey display at New Orleans 81
displayed in grocery store 688, 680
exhibit at Treasure Island 511
exhibits at New Jersey fair 712
-fed daughter of John.. Buchman 736
float in 4th of July parade in Wyoming...575
fudge cake 220
Harmonizers 609
house of H. W. Beaver 479, 481
ice cream 423
jelly marguerites 618
kolaches 144
load of, in Australia ...752
nut bread 143
pound cake 219
prune pudding 83
removed by smoke method 610
signs 581
spice cake 218
stand in North Hollywood, Calif. 90
stand of G. F. Kneeland.446
valentine 89
Huddleston, Wm., of Ireland, hive of 546
Hunterdon County honey exhibit 712
Icebox fruit pudding 738
Ice cream honey 423
Illinois tour 513
Indiana 4-H club apiary... 78
Indian meal moth, damage by 426
Inner cover, double-screened 11
International honey display at New Orleans.... 81
Introductory cage, home-made 431
Inventory sheet, Gardner's..215
Ireland, hive in, with top ventilation 546
Jamaican hive 558
Jelly roll, honey....617
Jordan, Forrest, installing bees 78
Kapuskasing, Ontario, experimental apiary at..350
Kelley, Mr. and Mrs. W. T..513
Killion, Carl E. 210
Killion, Mrs. Carl 513
Killion's method of packing hives 553
Kleeber, Mr. and Mrs. A. L. 145
Kneeland, G. F., and stand.446
Kolaches, honey 144
Kroschel, Robert, apiary of.708
Kudzu vine for bee shade 623, 624
Laurence, L. K., apiary of..478
Lewis, Mr. and Mrs. Geo. C., and family....105
Link, L. J., and skyscraper hives 25
Lovell, John H. 745
Lunch boxes, honey prepared foods for 548
Manzanita bloom 207
Marguerites, honey jelly...618
McNay, Everett J. 207
Match box 230
Metal tags for records ...745
Miller, Lee, displaying honey 688, 689
Morrill, Ross 513
Moth cocoons in box hive.. 16
New England bees ready for winter 750
New Orleans, La., banquet 96, 97
honey display at 81
Observation hive of N. G. Boulos 704
Ohio skyscrapers 484
Okefenokee swamp 675
Ontario eperiments in wintering 607, 608
Orange crates for windbreaks 640
Orchard with bees 281, 285
Osborn, W. W. 513
Outdoor colony 229
Package colonies grow up 74
Packages, 100, installed... 73
Peach jelly 491
Pease's beeses 296
Pie, honey cherry 353
Pie plant with honey....355
Plum jam 489
Photographing brood, apparatus for 209
Pollen trap 209
Portable scales 209
Prevost, Ned., and chicken egg 509
Prune pudding 83
Queen cells 641
Queen mating yard of L. E. Stewart 80
Records, shipping tags for.. 27

XUM

Red clover field 486, 487
Reed, E. C., float of in 4th of July parade 575
Refractometer handled by G. H. Vansell 207
Rubber sponge pad for hive seat 381
Salad mold of dried fruits and honey 84
Schultz Honey Farms, apiary of 73, 74
Scissors, case for 298
Section moistener 446
Sections, perfect 429
with foundation fastened.287
Shade for bees at Subiaco 623, 624
Shaw, Ellanora and Charles Leslie 639
Shipping cage for bees....169
Short, H. C., and helpers..288
Signs for selling honey 580, 581
Skep 22
Skyscraper hive 25, 74, 427, 484
Smoke applied to hive 246,611
Snow melted by heat from hive 40
Smoke method, honey removed by 610
Sprinkler for feeding bees.152
Stewart, L. R., queen mating yard of 80
Stephens, P. 753
Straw hive, primitive..... 22
Sugar syrup being fed bees 169, 649
Sweden, apiary in 213
Table for scraping sections.287
Test cages for pollination experiments 358
Thran, Leslie, honey exhibit of 712
Todd, Frank E. 207
Tontz, Clarence, with skyscraper hive 74
Top entrance 551
T tins, super of 211
Treasure Island 642
honey exhibit at 511
Truck, hand, for heavy lifting 416, 417
Tudor, Carl 513
Two-story colony during early spring 12
Valentine honey 89
Vansell, Geo. H. 207
Watkins, Wm. G. 207
Wax cake, handle for 361
Wheelbarrow for beekeeper.359
Wilder, J. J. 676
Wilson, H. F., presenting medal 145
Wilson, Dr. W. H. 23
Windbreak, artificial 554
for apiary ..November cover
in Idaho 743, 744
orange crates for.....640
Wind meter 283, 284
Winter scene ...January cover
February cover
Woodman, A. G. 513
Woolwine, Curtis, removing honey 78
Wrappings, festive 737

CONTRIBUTORS

Anderson, Edwin J. 162, 504, 541, 764
Andrews, L. L. 33, 98, 159, 235, 303, 313, 371, 438, 500, 572, 632, 696, 760
Aten, Mrs. I. F. 40
Avery, Lewis B. 507
Babek, Bro. Stephen 623
Baltzley, C. A. 574, 699
Barrett, Don P. 706
Bartlett, A. L. 558
Beach, Frank J. 743
Beaver, Harry W. 479
Beck, Dr. B. F. 313
Bohne, Geo. W. ...96, 236, 502
Bose, K. C. 427
Boulos, N. G. 704
Boyden, A. L. 653
Brenneman, Moody 446
Burleson, T. W. 75
Burr, Leslie 299, 677
Byer, J. L. ..39, 102, 164, 240, 307, 376, 443, 506, 571, 638, 702, 766
Carr, E. G. 27, 227, 712
Carroll, Clarence W. 753
Chamberlain, Frank D. 556
Clay, Harold J. 140, 733
Clouse, T. O'B. 40
Coggshall, Wm. L. ...221, 701
Collins, Robert J. 41
Conner, John 166, 550, 612, 637
Coulter, W. A. ...36, 373, 636
Cutts, Paul 443
Dacy, G. H. 619
Deyell, M. J. ...44, 50, 51, 53, 106, 168, 245, 292, 316, 382, 450, 516, 580, 645, 708
Dow Chemical Co. 626
Dowling A. V. 703
Dunavan, D. 611
Dunham, W. E. 11, 281, 356, 486, 626
Dunn, J. F. 24, 41
Eckert, J. E. ...315, 413, 626, 632, 642, 696, 713
Edgerton, Ben P. 362
Fife, Austin E. 640
Filmer, Robert S. 690
Finn, E. 137
Firschein, Irwin 241
Floyd, L. T. 237, 573, 764
Gardner, Lloyd C. 214, 418
Gilbert, C. H. 426
Goolsbey, L. R. 41
Greenwood, Florence ..35, 305
Hadley, Paul 641
Handel, Chas. O. 109
Harris, J. S. 703
Harris, M. 684
Hartman, Cary W. 33, 98, 159, 235, 303, 371, 438, 500, 568, 760
Haydak, Mykola H., ...740
Hendricks, W. H. 372, 634
Hiatt, R. D. 640
Hofmann, Chas. S. 669
Howell, D. W. 88
Huey, Chas. H. ....575, 576, ...675, 767
Hull, Walter H. ...16, 40, 76, 241, 298, 361, 446, 495, 560, 610, 683
Isaacson, C. M. 23, 228, 364, 432, 493, 561, 625, 689, 753
Johnson, Alfred P. ..704, 769
K., R. R. 297
Keen, G. H. 431
Kelty, R. H. .....163, 427, ...440, 762
Kendel, C. E. 313
Killion, Carl E. 99, 210, 286, 359, 477, 552
Kohr, Mrs. H. B. 17, 41
Kohr, L. H. 640
Kramer, C. O. A. 576
Krause, Fred A. 109
Krebs, H. M. 431
Kroschel, Robert 703
La Gazette Apicole 153
Latham, Allen 15, 216, 483, 686
Leake, John de Burgh 22
LeMay, L. C. 230
Link, H. J. 25
Litsey, E. 312
Littlejohn, C. M. .562, 685, 749
Lothrop, R. E. 19, 85, 149
McCrary, Jim 641
Martin, Thomas 49
Maynard, T. H. 571
Mead, A. F. 428
Meijer, Henri 559
Meyer, Henri 430, 559
Michener, S. W. 365
Miller, E. S. .....239, 352, ...496, 503, 701
Moore, Leander 641
Milum, V. G. 704
Morehouse, Bruce L. .. 18, 636
Morris, W. L. 576
Morse, Grant D. 9
Mraz, Chas. .....48, 230, ...415, 505, 765
Munro, J. A. 102, 374, 635
Myers, H. M. 101
Newell, R. E. .....229, 557 .....749, 767
Nielsen, Benj. 27, 152, 161, 230, 312, 381, 416, 441, 688, 699, 748
Nielsen, Mrs. Benj. 13, 82, 89, 143, 218, 289, 353, 421, 489, 547, 617, 679, 737
Norgren, J. F. ...36, 108, 313, 545, 569
North Dakota Agricultural College News Service..627
Norton, A. N. 428
Norton, D. H. 312
Observer, The 26, 90, 154, 495
O'Carroll, Michael 485
Onymous, A. N. 313, 563
Paddock, F. B. 442, 763
Pangburn, W. S. 502
Parker, R. L. 163, 504, 700
Parks, H. B. 34, 100, 150, 237, 304, 372, 440, 501, 570, 643, 697, 761
Pastian, A. G. 576
Pauli, G. A. 34, 306, 568
Pearcey, G. F. ...161, 439, 697
Pease, C. H. 226, 296, 361, 428, 494, 555, 622, 687, 751
Penn, Geo. M. 108
Pettit, Morley 424
Phillips, Chas. E. 607
Phillips, E. F. 146, 221, 563, 614
Phillips, Mary G. 97
Pile, Parson ....35, 160, 307, ...569, 761
Pirkey, C. H. 381
Polhemus, Mrs. G. N. 355
Pugh, R. M. 162, 441, 698
Rahmlow, H. J. 151, 241, 366, 605
Reed, Earl C. ...238, 503, 765
Rice, Mrs. Jay 640
Robinson, J. M. 53, 627
Roddy, John J. 682
Rogers, H. Sheldon 26, 420
Root, E. R. 205, 294, 672
Ross, Mildred 746
Rowland, M. J. 349
Rowland, W. A., ...767
Ruel, Joseph 88
Sams, C. L. 306
Sawyer, Lee E. 482
Scudder, H. H. 10
Scullen, H. A. 376, 698
Seward, Henry B. 312
Shaw, Mrs. Leslie A. 639
Sieber, B. P. 381, 561, 703
Siegfried, Ernest 227
Smawley, Clint 41
Smola, C. 575
Snyder, Penn G. 298

Southwick, Arthur M. 41
Stephens, P. 752
Stewart, L. R. 77
Stone, George S. 676
Sturdevant, J. H. 153, 556
Stuyvesant, J. B. 363
Sundean, H. A. 507
Sweetser, L. H. 89, 313
Tacoma, Hessel 576
Tanquary, M. C. 37, 374
Thomas, F. L. 691
Tontz, Clarence 73
Veith, Bros. Alphonse 575
Ward, Emory 492
Ward, Henry B. 241
Warren, Everett M. 49
Weatherford, H. W. ..100, 375
....762
Wedgworth, Leslie 100, 375, 634
Whitcombe, Marie 384, 447, 511
Wilder, J. J. 38, 505, 772
Wilson, H. F. 38, 570
Wilson, Dr. W. C. 312
Wilson, W. H. 23
Wixom, Eva 507
Wood, A. D. 633
Wood, C. W. 153, 685
Wormley, Ray 641
Yates, Clade L. 508

DEPARTMENTS

Alabama 443
American Honey Institute News Notes ...47, 91, 231, 311, 377, 510, 578, 650, 711
Arizona 100, 375, 634
Asked and Answered ..42, 110, 242, 314, 378, 448, 514, 582, 646, 714, 770
British Columbia 161, 439, 697
California 33, 98, 159, 235, 303, 371, 438, 500, 568, 572, 632, 696, 760
Colorado 34, 305, 568
Confab 48, 108, 166, 244
Editorials 30, 93, 156, 232, 300, 368, 435, 497, 565, 629, 693, 757
Georgia 38, 505, 762
Honey markets 4, 68, 132, 196 278, 344, 408, 472, 536, 600, 664, 728
Idaho 633
Illinois 99
Indiana 239, 503, 701
Iowa 442, 502, 700, 763
Just News ..28, 92, 165, 224, 311, 380, 445, 512, 577, 628, 692
Kansas 163, 504, 700
Louisiana 236, 502
Manitoba 237, 573, 764
Michigan 163, 440, 762
Minnesota 37, 374, 636
Montana ....35, 160, 307, ...569, 761
Nebraska 161, 441, 699
New Jersey 637
New Mexico 574, 699
New York 101, 701
North Carolina 306
North Dakota ...102, 374, 635
Ohio 36, 373, 636
Ontario 39, 102, 164, 240, 307, 376, 443, 506, 571, 638, 702, 766
Oregon 376, 698
Pennsylvania ...162, 504, 764
Saskatchewan ...162, 441, 698
South Dakota 36, 306, 569
Spinster Jane Says 52, 104, 155, 225, 309, 367, 434, 515, 579, 644, 705, 755
Talks to Beginners 51, 106, 168, 245, 316, 382, 450, 516, 580, 645, 708
Texas 34, 100, 160, 237, 304, 372, 440, 501, 570, 633, 697, 761
Utah 372, 634
Vancouver Island 35, 305, 571
Vermont 239, 505, 765
Virginia 100, 375, 762
Wisconsin 38, 570
Wyoming 238, 503, 763

EDITORIALS

Advertising, silly 631
AFB, burning only safe cure 93
can it be stamped out? .694
resistance of Carniolan bees to 158
resistance of Caucasian bees to 158
Alfalfa becoming a source of honey in the East..566
American Honey Institute goes on 32
on the air 156
Associations, beekeepers', importance of 300
Aster, late flow from....694
Bakers, honey getting bad reputation with 300
Bakery trade, poor honey loses 157
Bee culture laboratories, Pacific States 232
equipment, used, dangers of 566
industry, needs of 32
inspector makes interesting observation 233
stings, deaths from.... 93
stock, better needed ...436
Beekeepers' associations, importance of 300
don'ts for 498
Beekeeping costs 232
educate yourself in....300
one way to boost....566
orthodoxy in 158
Bees barred from cities and towns 567
best packing 566
in town, ordinance against unconstitutional 370
package, why 30
scheme to tax 368
Beeswax prices and new World War 694
why lighter colored.... 94
Boosting our industry....566
Brood rearing, early, cool weather stopped 368
Burning the only safe cure. 93
California Jubilee meeting.567
Canada to advertise honey nationally 157
Carbolic acid for removing honey, warning against.436
Carniolan bees, resistance to AFB 158
Caucasian bees, resistance to AFB 158
Census, 1940, proposed for.369
Central honey extracting plant 497
Chance, our last 435
Clarification by sedimentation 435
Clover, sweet, threatened .566
Clover, yellow sweet, changes picture 565
Colonies populous in spring, what to do with 302
Comb honey, what about?..232
Costs, beekeeping 232
Cost of honey production too high 233
Cyanogas, gas mask for...629
Dandelions bloom in January 93
Diabetes, honey for.... 95
Diminishing returns on expansion 497
Don'ts for beekeepers ...498
Double brood chamber hives, trend towards 93
East, alfalfa becoming main source of honey in....566
Entrance diagnosis 369
Entrances, top, why?....629
upper hive, for summer use 368
Extracted honey, why it granulates quicker than comb 233
Extracting plants, central..497
Fake notions, too many...301
Florida citrus juice and honey 234
Food buying habits of nation 436
Forest leaves for winter packing 629
Four-H honey production project 436
Fruit trees, hand pollination of 233
Gas mask for applying Cyanogas 629
Hand pollination of fruit trees 233
Hives, double-brood chamber, trend towards.... 93
Honey and Florida citrus juice 234
and health 565
Canada advertises nationally 157
cleaned up in some areas.435
crop below earlier estimates 94
diluting for table use....499
dip for ice cream.... 30
extracting plants, central.497
extracting plants, inspection of 368
extracted, why it granulates quicker than comb 233
for diabetes—again.... 95
for infant feeding....156
for infants 234
getting bad reputation with bakers 300
habit, get the....566
local advertising of....300
lowering prices may not sell 300
minerals in, value of....630
more enthusiasm needed.631
new matter on 93
nut ice cream....694
poor, loses bakery trade.157
prices for 1939....567
production costs too high 238
production project of 4-H club 436
prospective buyers to .. taste 232

XUM

removed by carbolic acid, warning against 486
thin or unripe, damage done by 301
two-queen system of..... 30
water content of important 94
Week, and 232
Week, National 629
wild 156
Ice cream, honey dip for... 30
honey nut 694
Industry, our, and what it needs 32
Infant feeding, honey for..156
Infants, honey for.....234
Inoculation of sweet clover seed, importance of... 94
Inspection honey extracting plants 368
Inspector, bee, makes interesting observation 233
In union there is strength..436
Local advertising of honey.300
Marketing agreement, after, what? 630
Meetings, two important...567
Michigan Beekeeper 693
Minerals in honey, value of.630
Moving apiaries, November a good month for.....693
National Honey Week.....629
Nation's food buying habits.436
Nectar, abundant, necessary for surplus honey 758
Needs of the bee industry.. 32
Notions, fake, too many....301
Off-flavored honey 757
Ordinances against keeping bees in towns unconstitutional 370
Orthodoxy, beekeeping in..158
on wintering, new 31
Pacific States Bee Culture Laboratories 232
Package bees, order early.. 94
why 30
Packages, explicit directions needed for hiving.....157
Packing, best of bees.....566
Packing for winter, ... moderate 758
Pollen for winter, importance of securing 498
Pollination of fruit trees, hand 233
Prices, lowering, may not sell honey 300
Project, 4-H honey production 436
Propolis, nuisance of in the South 30
Quadruple winter case, why in discard 565
Queens, good, importance of 370
supersedure of premature 435
Returns on expansion, ... diminishing 497
Root portable windbreak...693
Rubber dollars 565
Sacramento meeting ..629, 758
Sacred and silly 631
Sedimentation, clarification by 435
Southern Beekeeping States' Federation meeting ...567
Spring issue, 80-page 232
Stings, death from 93
Stop, look and listen.....156
Sugar buying, temporary hysteria of 629
Supersedure in late summer 694
of queens, premature....435
Sweet clover seed, inoculation of important..... 94
threatened 566
weevil 759
yellow, changes picture..565
Sweet tooth, U. S. has.....437
Taxing bees, scheme of....368
Thixotropy and viscosity...695
Top entrance, why?.....629
Top supering 693
Two-queen system of honey production 30
Under-consumption, not over-production 629
United States has sweet tooth 437
U. S. census proposed for 1940 369
Viscosity and thixotropy...695
Water content, an important factor in honey..... 94
Wax, lighter colored, why?. 94
We missed you 94
West, drouth more extensive than first thought 759
Wild honey 156
Windbreak, Root portable..693
Winter case, quadruple, why in discard 565
forest leaves for.....629
packing, excessive, becoming obsolete 630
packing, moderate 758
Wintering, new and old orthodoxy 693
new orthodoxy on..... 31
Yellow sweet clover changes picture 565

GLEANINGS
in Bee Culture

"Can Spring be far behind?"

Vol. LXVII Number 2

February, 1939

XUM

WHY——

Are Root's the Leaders in Volume of Sales?

Unseen values that only experience in the bee-yard can convey are some of the things that help to build sales. Read the numerous unsolicited testimonials in our new 1939 catalog (taken from hundreds of such letters). You will then understand why the majority of beekeepers everywhere

Ask for Root Bee Supplies

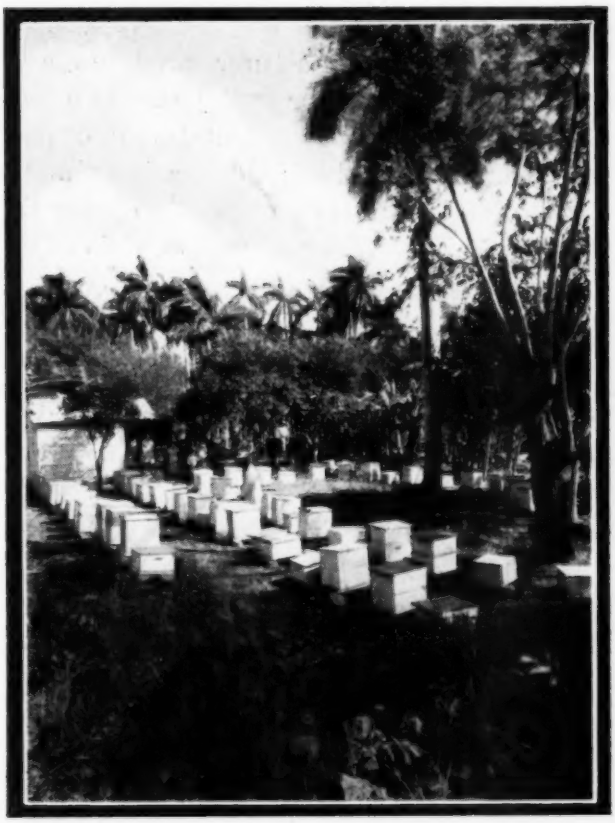
A sample of recent bona fide sales.
Beekeeper drives 200 miles for 12,000 Root frames.
He Saves

Over 3000 words of information on beekeeping questions in 1939 Catalog

The A. I. Root Co., Medina, O.

B & Z LIBRARY

GLEANINGS in Bee Culture



An attractive apiary under tropical skies.

Vol. LXVII Number 3

March, 1939

XUM

For Your Protection

THE A. I. ROOT CO., MEDINA, O.

When any manufacturer produces a superior article he knows that it will be imitated. We have had to protect our customers against imitators in other lines. To guarantee our bee-supply friends getting quality merchandise WE ARE STAMPING our name on the topbars of frames, inside of hive-bodies and supers, rims of excluders, etc.

LOOK FOR THE NAME
Before you buy

LARGE QUANTITY BUYERS

Should see our Dealers

The A. I. Root Co., Medina, O.

"Quality for Quality We Meet Any Price"

EXTRA MONEY

There is an opportunity in a large number of localities for some energetic beekeeper to earn extra money by soliciting subscriptions to

GLEANINGS IN BEE CULTURE

Write for information and sample copies

Circulation Manager, Gleanings in Bee Culture
Dept. R4, Medina, Ohio

Gleanings

IN BEE CULTURE

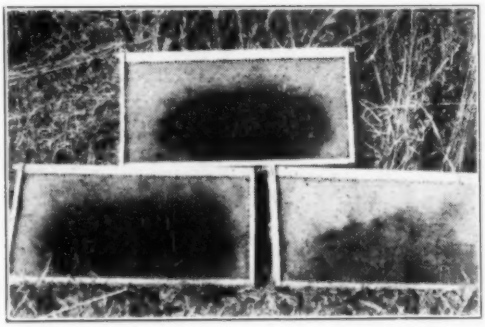
Special Spring Issue

VOL. LXVII April, 1939 NO. 4

XUM

The Choice of Thousands of Beekeepers

3-Ply AIRCO Foundation



Valuable brood combs built on 3-Ply Foundation.

—Maximum number of worker cells from top-bar to bottom-bar.

—Will not melt down during the hottest weather.

What More Can You Ask?

—And 95% of successful beekeepers wire their frames horizontally regardless of how they are reinforced.

Root QUALITY

Buy 3-Ply Foundation

Root QUALITY

The A. I. Root Company, Medina, Ohio

B & L LIBRARY

GLEANINGS in Bee Culture

Bees find the nectar in cacti in spite of the thorns.

Vol. LXVII Number 5

May, 1939

XUM

3-PLY AIRCO FOUNDATION

--The First Choice
of Commercial Beekeepers

--The Final Choice
of Beginners

BUY 3-PLY FOR SATISFACTION

10 Sheets	.95
50 Sheets	4.50
200 Sheets	17.70

(SEE YOUR ROOT DEALER)

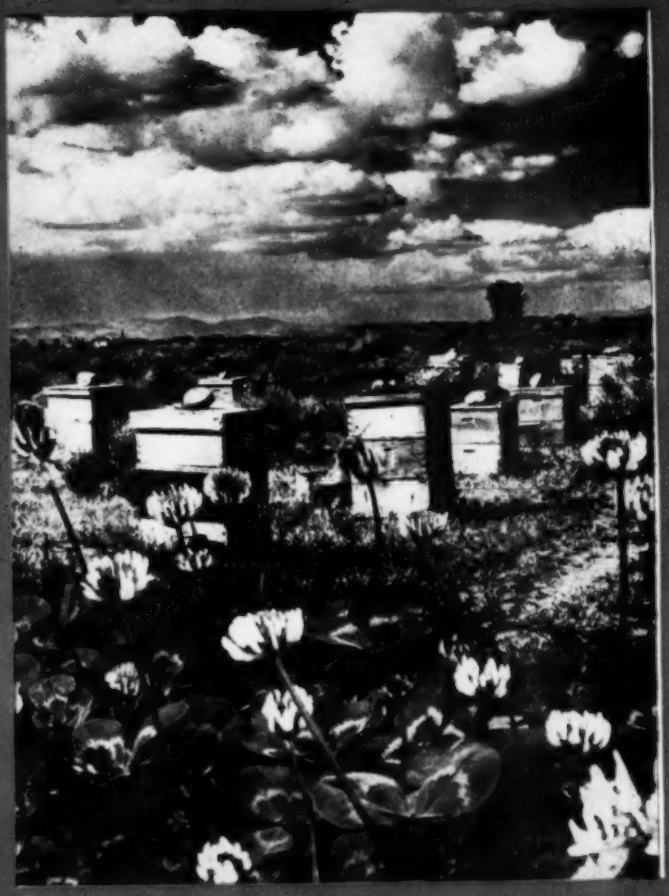
Root QUALITY BEE SUPPLIES

The A. I. Root Co.
Medina, Ohio

Root QUALITY BEE SUPPLIES

Note: Root's Standard Triple-Locked-Corner Frames are more popular than ever. Imitated but never equaled. The frame that is rigid, square and easy to assemble.

GLEANINGS in Bee Culture



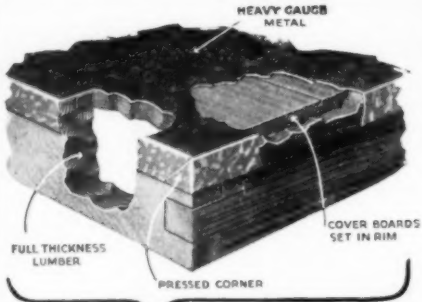
—Photo by G. A. Peuil.

Vol. LXVII Number 6

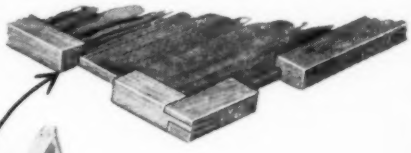
June, 1939

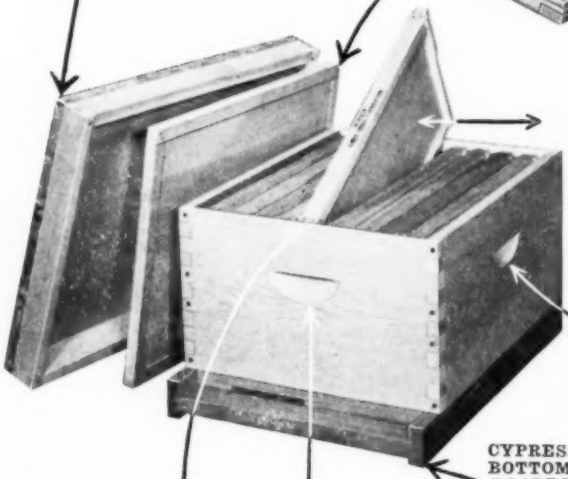
XUM

BUY THE BEST WITH THE REST



STRONG INNER COVER
Correctly designed for long wear.



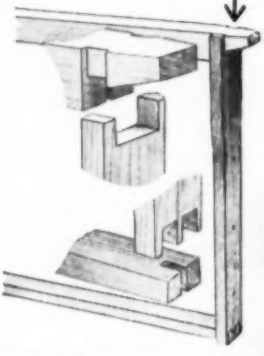


THREE-PLY AIRCO FOUNDATION
No warping, sagging or stretching

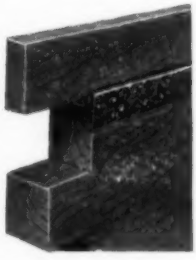
IMPROVED HAND HOLDS

CYPRESS BOTTOM BOARDS

SHARP UPPER EDGE REMOVED



HIVE BODY
Made of clear, soft pine. Also used as extracting super.



TRIPLE LOCKED CORNER FRAMES
Made of clear soft pine lumber, carefully inspected, and milled on special machinery designed and built by Root's. The top-bar has rounded edges.

Galvanized Steel Frame Supports. Extra strong for frame to rest on.

Standard Everywhere

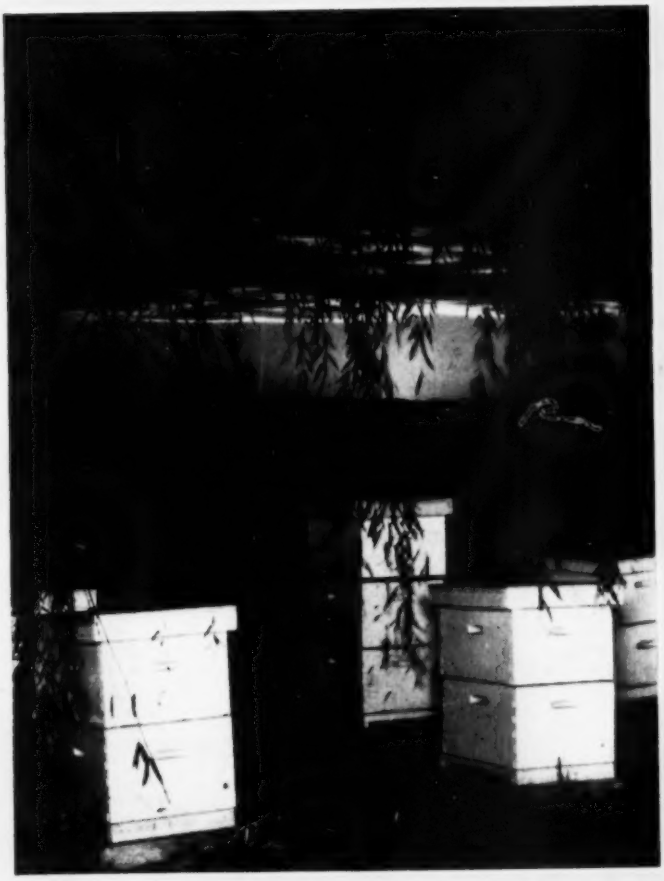
Root QUALITY BEE SUPPLIES

See Your Root Dealer

THE A. I. ROOT COMPANY, MEDINA, OHIO

ATE
2

GLEANINGS
in Bee Culture



DAWN —Photo by G. A. Pauli

Vol. LXVII Number 7

July, 1939

XUM

WORKING 24 Hours a Day

To Give the Famous Root Service

on the Big Orders for

Root QUALITY BEE SUPPLIES

SOME of the wonderful items that save you money—

50 Sheets 3-Ply Airco Foundation	$4.50
100 Triple-Locked-Corner Frames	5.40
500 White Basswood Sections	6.50

See Your Root Dealer

The A. I. Root Company, Medina, Ohio

GLEANINGS in Bee Culture

HOLLYHOCKS —Photo by G. A. Pauli

Vol. LXVII Number 8

August, 1939

XUM

Keep Honey on Display

Attractive Shipping and Display Case. Printed in two colors on new variegated green stock.

Made for 4¼x1⅞" sections only.

744D—To hold 24 sections
10, $1.80; 20, $3.20 50, $7.50

742D—To hold 12 sections
10, $1.52 20, $2.30 50, $5.25

F.O.B. Medina. 10, Wt. 30 lbs.

Green Gummed Tape
for Corrugated Cartons:
2 inches wide, 600 ft. 65c.

(Height when on display 23")

	4¼x1⅞	4¼x1½	4x5x1⅜
Window Cartons	7234	7233	7235
	100, $1.00; 500, $4.50		
Shipping weight per 100, 6 lbs.			
Regular Cartons	7274	7273	7275
	100, 70c; 500, $3.00		
Shipping weight per 100, 6 lbs.			

Regular Cartons for 4x5x1½, 3⅝x5x1½ and 4¼x4¾x1⅜ at 70c for 100; 500, $3.00

Shipping weight per 100, 6 lbs.
(Window Cartons for same at $4.50 for 500.)

For Printing Name on Cartons add to regular prices: 100, $1.50; 500, $2.25; 1000, $3.00
If by mail, add postage.

CORRUGATED PAPER SHIPPING CASES

for 4¼x1⅞ and 4x5x1⅜ sections
461D—10 for $1.85—100 for $17.50
Sh. Wt. 10, 25 lbs.

496—Silicate of Soda for sealing cartons—1 gallon, 60c; ½ gallon, 35c; 1 quart, 20c.

3 KINDS of GLASSWARE

• • •

TIN CANS AND PAILS

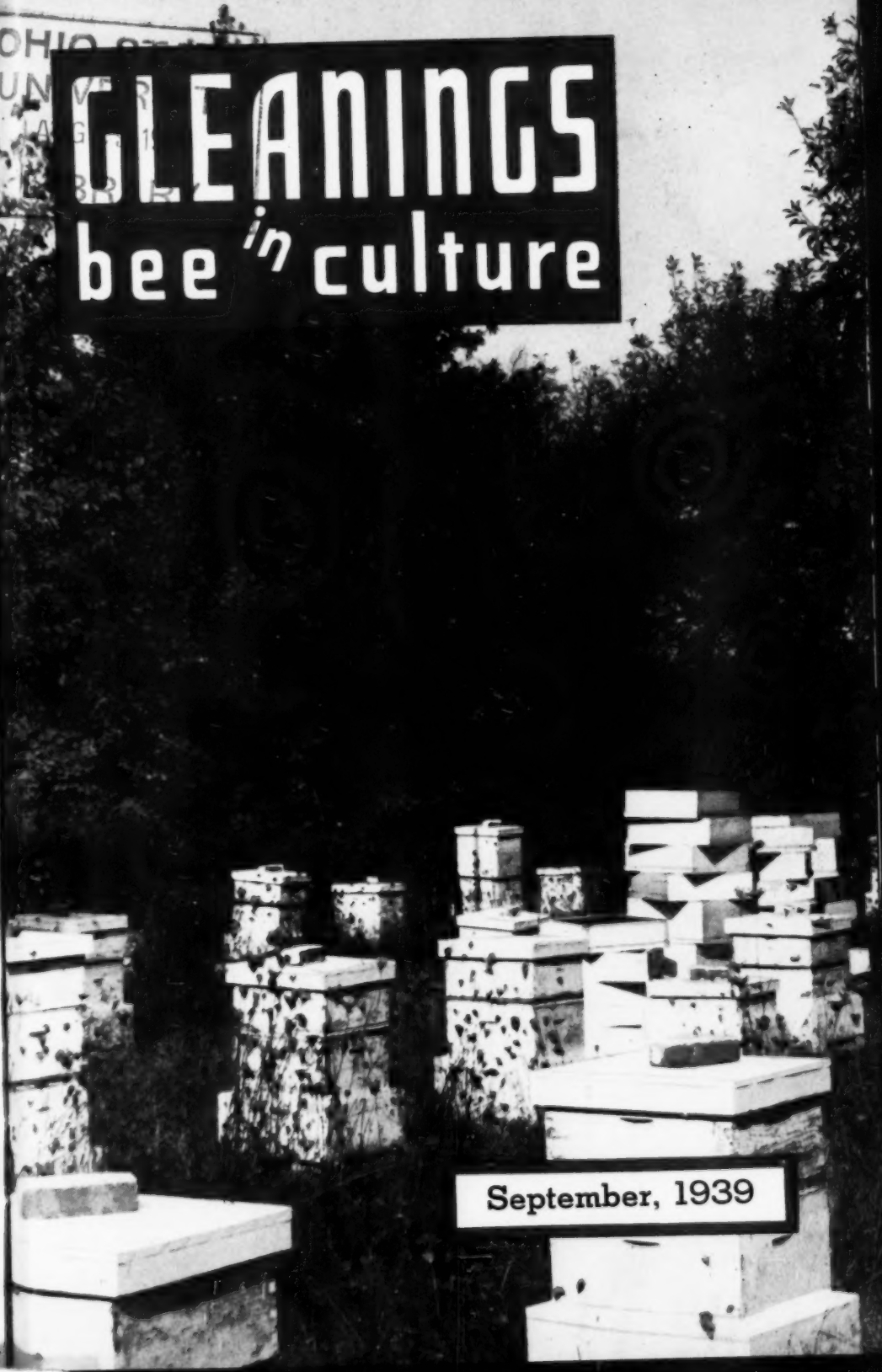
• • •

The A.I.Root Co.
Medina, Ohio

B & Z LIBRARY

OHIO
UNIVERSITY

GLEANINGS in bee culture

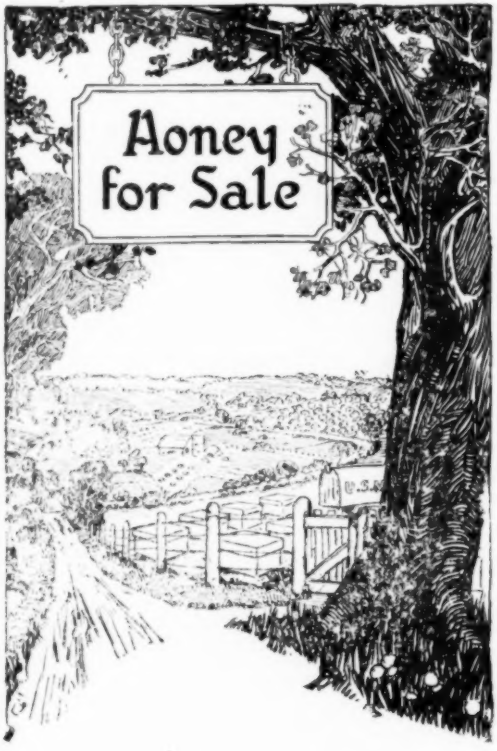


September, 1939

XUM

Are You Helping

Cut the Profits Out of Honey?



—Are you offering honey to wholesalers at prices that enable the merchant to advertise cut-rate prices? (We had our attention called recently to honey being sold in Philadelphia in red-top honey servers (50-cent value) for only 43 cents. Packed by honey producers.)

—Are you offering honey at roadside stands at ridiculously low prices, just because some of your neighbors are foolish enough to give it away?

—Are you one of those beekeepers who produces one or more carloads of honey and who offers honey to honey packers at low prices—thus establishing a bad situation for all?

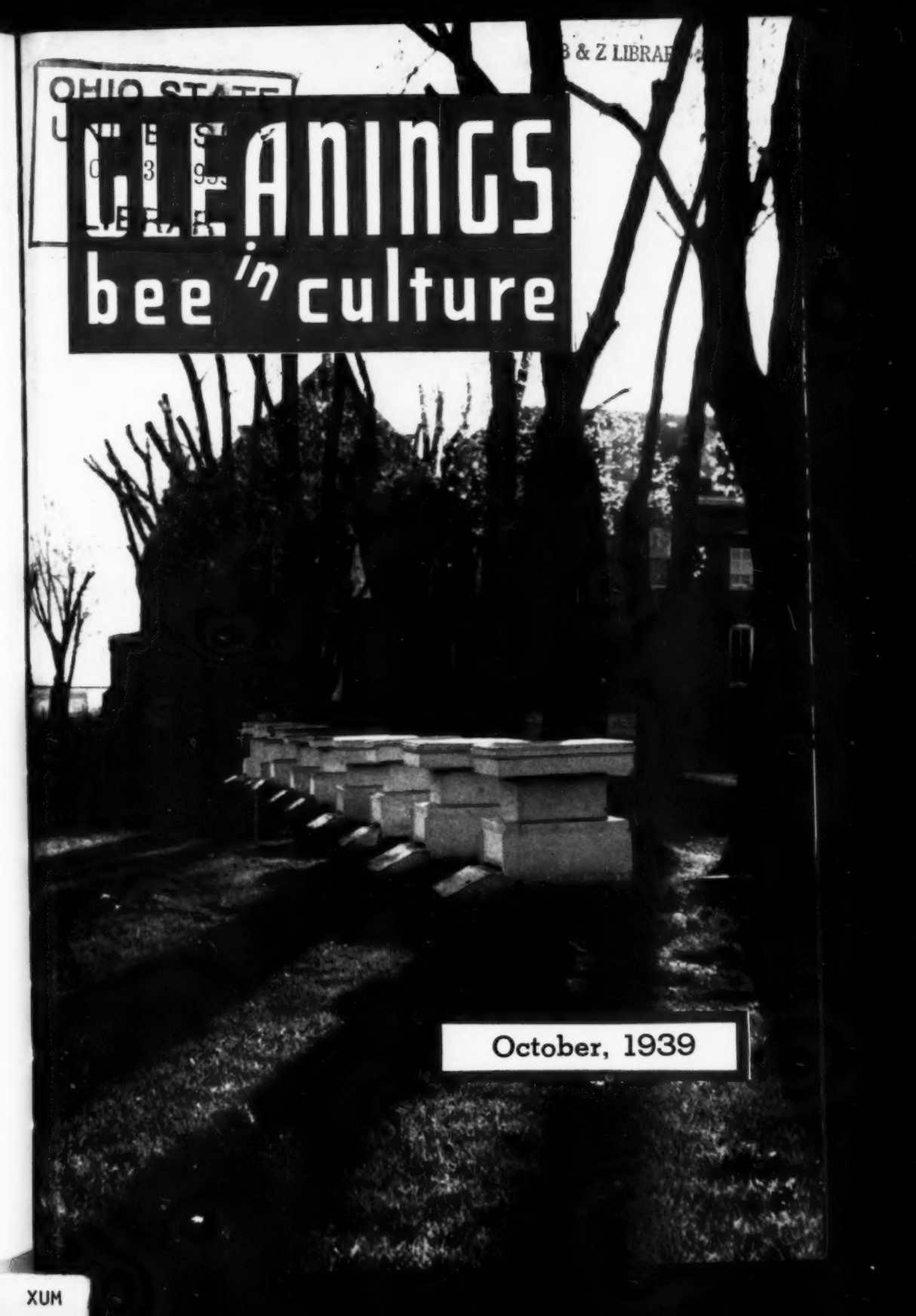
—Are you helping to develop a situation so bad that the large merchandiser who is interested in your future cannot compete?

Join the League of Honey Boosters

Talk the wonderful health qualities of honey, its quick energy-giving properties, its various flavors, its mineral content. In other words, become a honey seller and increase your profits.

Root QUALITY Bee Supplies **The A. I. Root Co., Medina, O.** Root QUALITY BEE SUPPLIES

B & Z LIBRARY



GLEANINGS in bee culture

October, 1939

XUM

SELLING HONEY TODAY

Modern Packages, Labels, Helps

Big Hit of 1939

5-pound Glass Jars

Create instant demand

1 dozen $0.95 Two gross $9.10 each
One gross $10.00

Send order to Medina, not sold through dealers

Shipping weight, 1 doz., 20 lbs.

Write for prices on glass and tin containers.

Day and Night Reflector Sign

An attractive double-faced sign. Size 14x18½" with 1½" flange
$1.60
Sh. Wt. 5 lbs.

Other Honey Signs

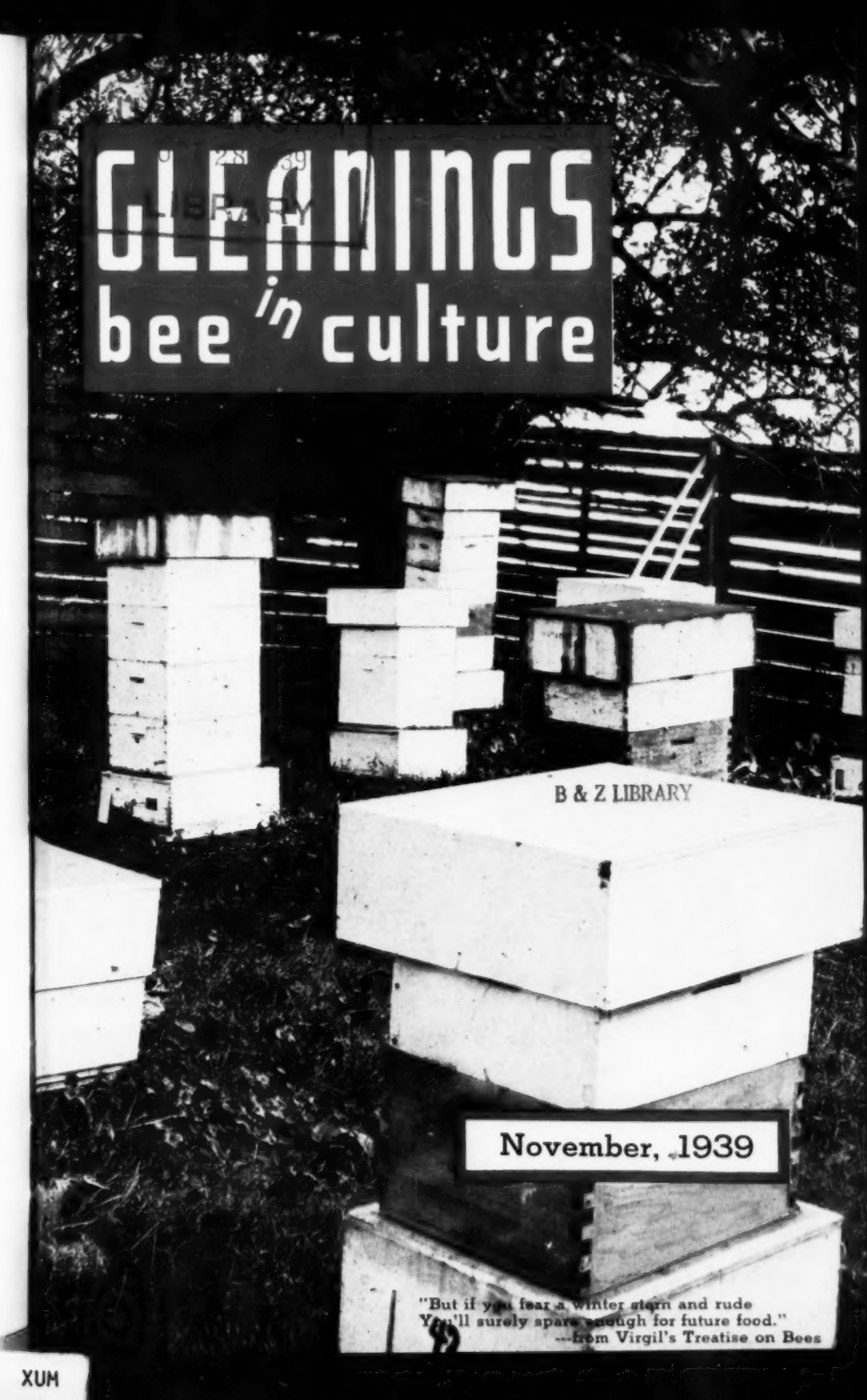
Shipping and Counter Display Cases

Two sizes for 4¼x1⅞ sections of comb honey

For 24 sections	10,	$1.80
For 12 sections	10,	1.52

Write for Container price list.

THE A. I. ROOT CO., MEDINA, OHIO


GLEANINGS
bee in culture
B & Z LIBRARY
November, 1939
"But if you fear a winter stern and rude
You'll surely spare enough for future food."
---from Virgil's Treatise on Bees

XUM

EVERY WEEK

Should be Honey Week

The Best Honey Selling Helps
Build Sales All the Time

Servers Sell Honey

Drip-cut Honey Dispenser

6 dozen	$7.20 per doz.
3 dozen	7.50 per doz.
1 dozen	8.00 per doz.

Standard Server

1 to 2 doz.	$2.95 per doz.
3 to 5 doz.	2.85 per doz.
6 to 11 doz.	2.75 per doz.

Stop Customers

with our up-to-date

Day and Night Sign
$1.60

Mailing Wt. 5 lbs. Postage Extra

Attractive Honey Labels---30 Fine Designs

Root QUALITY **The A. I. Root Co., Medina, O.** Root QUALITY

U.S. DEPT. OF AGRICULTURE

Gleanings in Bee Culture

MERRY CHRISTMAS

December
1939

XUM

THE HOUSE OF ROOTS

1869

STILL GROWS

In 1869 it was only an ideal—a great desire to be of real helpful service to fellow men. This service was freely given—bringing success to the receiver. This service was accompanied with goods into which had gone the very best thought of the times, the best material obtainable and real conscientious workmanship. How well Root Quality Bee Supplies were made is proven time and again by friendly letters telling about the long service given by Root Bee Supplies.

In 1939 this ideal has grown into an institution, known around the world,—an institution serving thousands upon thousands of beekeeper friends throughout the world. This great institution builds a BETTER BEEKEEPING FOR TOMORROW. A friendly Institution to all beekeepers, helping them during these crucial days to secure the most and the best from their bees

Root QUALITY BEE SUPPLIES

THE A. I. ROOT COMPANY

MEDINA, OHIO

Complete Beekeeping Service

XUM